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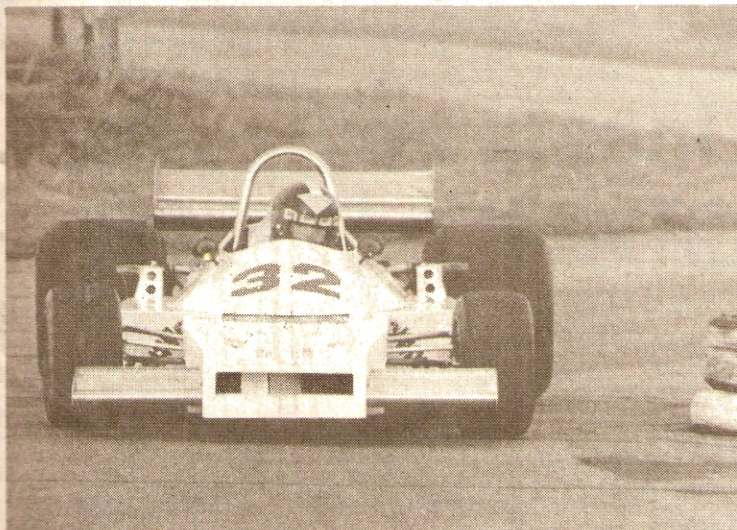
Formula 3 racing review

David Kennedy's F3 season in Europe □ Bandama Rally

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Formula Ford to Formula 1 in twelve months: Derek Daly (pictured testing the new Theodore Formula 1 car at Goodwood during Christmas week) used his Formula 3 season well.



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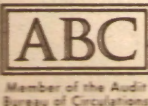
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Stronger than ever

There are few things more satisfying in motor sport than a track racing category which is successful in performing every function for which it was designed. This is especially true of a category inspired by the FIA: although there is a definite place for the directly 'commercial' formulae, the competition inspired by relatively 'free' engines, suspensions and other components is a vital part of the motor racing spectrum. To those of us involved in the sport, it is therefore very pleasing to note the healthy state of Formula 3, and the great promise held by that category for the coming season.

The lack of suitable production engines which could compete with the Ford 'screamers' which dominated the 1-litre formula led to the decision of the FIA to go up to 1600cc for the 1971 season. This formula was theoretically more attractive to motor manufacturers, but it never really took off. From 1971 to 1973, Formula 3 bore no relation to the tremendous final seasons of the 1-litre category. For 1974, then, the FIA decided to make another change in engine capacity, this time to 2 litres. We all questioned this decision when the 1974 season proved to be disastrous for Formula 3, but the category was saved by the involvement of Toyota, whose 2-litre engine was ideal for the formula and, tuned by Novamotor, soon became almost totally dominant. Now Formula 3 has fully recovered from the malaise induced by two formula changes, and is poised to provide the kind of competition which we enjoyed so much at the end of the sixties, when the old 1-litre category produced many of our current Grand Prix stars.

The only problem with the 1-litre races was the lack of competition among engine manufacturers, for the racing itself and the rivalry among chassis constructors were both extremely interesting. The same has been true last season, when the 2-litre Formula 3 really got to its feet. However, the prospects for 1978 are excellent. Not only is Formula 3 now once again being seen to produce young drivers of real talent, thus making it much more attractive to the aspiring driver, but it has gained enough prestige also to attract more engine manufacturers.

Perhaps the most exciting prospect is the return of the French, and in particular the involvement of Renault. Formula 3 has been largely responsible for the fall from favour of Formule Renault Europe, for which the company had such great hopes, only to see it become even less successful than the other major 'commercial' formula, Super Vee, which Formula 3 continues to eclipse at international level. The Renault attack is to be welcomed, even by Toyota, who must be glad to have a rival.

There are also signs that certain tyre manufacturers—among them Pirelli, M&H and Dunlop—are gathering together an onslaught on the Goodyear monopoly. Rivalry among chassis manufacturers will be keener than ever this year, with the current big three (March, Chevron and Ralt) fighting challenges from the French Martini concern and a healthily large number of smaller firms. The European Formula 3 Championship, now entering its third year, has already achieved considerable prestige, and the various national championships (including our own BP and Vandervell series) will continue as before thanks to their popularity last season. Even Motor Circuit Developments (disbelievers in Formula 3 until this year) are to make special efforts to promote the formula in 1978. Last—and most important of all—a strong line-up of young driving talent seems assured.

We can look forward to a vintage year.

cover picture

The man of the year in Formula 3 last season was Derek Daly, pictured at Thruxton at the wheel of his Chevron-Toyota B38. We discuss the BP champion and his rivals in our annual review of Formula 3 racing, which starts on page 20.

next week

Our full preview of the opening round in the 1978 World Championship of Drivers, the Argentine Grand Prix—Review of the Ford club formulae: FF1600, FF2000, Sports 2000—John Bolster tests the new Rover 2600—New cars from Japan—Enzo Ferrari speaks out*.

*These items were correct at the time of going to press.



Stommelen—possible.



Patrese—probable.

Rolf or Riccardo for Ambrosio?

At the moment, there seems to be some doubt as to the identity of the second Ambrosio driver. At first, it seemed certain that Riccardo Patrese would back up Gunnar Nilsson this year, but there is now a possibility that the number two car will be driven by Rolf Stommelen.

"It's still not decided," Alan Rees told us on Tuesday. "I would say that Patrese is the more likely of the two at present, but there is a definite possibility of running Rolf." If the Stommelen deal comes off, sponsorship will come from Warsteiner, the German beer

company which has previously backed the Toj outfit, for whom Rolf has driven in the past.

The Ambrosio team is, of course, currently involved in a frantic rush to complete their first car in time for Nilsson to race it at Interlagos. "The mechanics have been fantastic," said Rees. "They worked more or less the whole of Christmas, and consequently we're slightly ahead of schedule. The monocoque should be ready before the weekend. We'll have only one car in Brazil, but there will be two for South Africa."

USAC looking good

Shortly before Christmas, John Webb and Peter Browning went to America for further talks with leading USAC officials about the two championship rounds which will be held in Britain later this year. They were extremely encouraged by their visit.

"One of the things about which we had misgivings", said Browning, "was the quality of the entry. But we were left in no doubt whatever that they firmly intend to send over all their leading cars and drivers. Equally, we are determined to do right by them. We are not going to Europeanise these races. They will be run exactly to their rules, with pace cars, yellow flags and everything. We reckon that some of the flavour would be lost if we tried to run

it as a normal race meeting. We shall have American officials over here for the two meetings.

"Everyone over there is taking it extremely seriously, and they all seem to be very excited about it. It's a very big operation. Already they're talking about chartering two Jumbo Jets just to accommodate all the people directly connected with the races, the drivers, mechanics, officials, etc!"

The Silverstone race is to be 52 laps, the Brands one 48 laps. There will be four hours of unofficial practice on the Thursday and Friday before each race, and the cars will qualify, in groups of four, for periods of only 15 minutes! Please hurry, October. . . .

Rosberg to drive Kauhzen Kojima?

Kojima Engineering, the Japanese constructor whose car made such a sensational showing in the 1976 Japanese GP, are to run their very latest F1 car in the Brazilian Grand Prix on January 29. Apparently there were hopes that it would also compete in Argentina, but Kojima was unable to agree terms with the organisers in Buenos Aires.

After last October's Japanese GP, the team's designer, Masao Ono, revamped the 009 F1 car quite substantially, and it was then tested by Kunimitsu Takahashi. Unhappily, the local man had a huge accident at Fuji on December 21, and the car was very seriously damaged. However, the team will definitely go to Brazil.

Who will drive the car? No decision has yet been taken, but there are ru-

mours in Japan that Willi Kauhzen, said to be interested in running a F1 team, may be involved. Kauhzen ran a car for Keke Rosberg in the Suzuka F2 race, and, while over there, had a meeting with Kojima. Rosberg, in fact, drove the F1 car shortly before Takahashi destroyed it, and impressed onlookers, proving half a second quicker than the Japanese driver. Kauhzen has made no recent announcement about his plans, but the word in Japan is that he will run a Kojima in the World Championship, beginning with the Monaco Grand Prix. The driver, presumably, will be Rosberg, and it is thought more than likely that Keke will also drive the works car at Interlagos. Certainly Kojima has made it clear that he would like a European driver in the car.

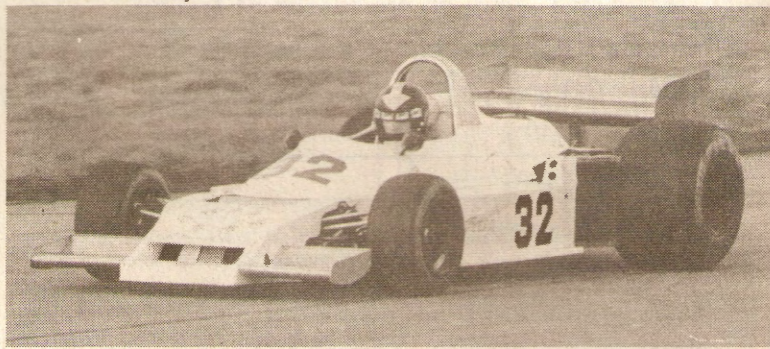
Cheever gets his formula 1 chance

The new CSI ruling on the grading of international licences for drivers took effect on January 1. It seems to us to be both good and bad. The move came after pressure on the CSI last year when the driving of certain F1 backmarkers left a good deal to be desired. From that point of view, the new rule is good. But the problem with such a hard-and-fast rule is that it rejects the worthy as well as the unworthy. To qualify for a Grade A (Formula 1 standard) licence, a driver must now finish in the top five in five F2 or World Championship sports car races in the 12 months leading up to his application.

Derek Daly's early showings in the new Theodore F1 car would seem to indicate that he is well capable of turn-

ing in a respectable F1 performance. Just before Christmas, Derek got round Goodwood in 1m 8.0s, one of the quickest times ever recorded there. Sid Taylor and Teddy Yip were delighted with his showing, and wanted the Irishman to drive the car in South America. However, the licensing system precludes it. Mario Andretti has suggested that the USAC 'rookie' system would be the one to adopt in Grand Prix racing, and we tend to agree. Derek, however, is less aggrieved than might be expected: "At this stage I don't think I'm fit enough to stand the heat out there, anyway." As we went to press, we heard that it was almost certain that Eddie Cheever would drive the car in South America.

Daly was tremendously impressive during testing with the new F1 Theodore, but cannot race the car yet.



Ongais and Leoni drive the Ensigns

Two works Ensigns will be run in the South American races, driven by Danny Ongais and Lamberto Leoni. Since Clay Regazzoni's last-minute departure to Shadow (just before Christmas), Mo Nunn has had a great deal to do. Because of the F1CA rules, he is committed to running two cars during 1978, and suddenly he found himself without any drivers at all.

Leoni is to drive for the team throughout 1978. The young Italian made his F1 debut at Monza last year, driving the Durex Surtees, and impressed a lot of people with his cool approach. Backing for his drive comes from Italy, but the name of the sponsor has not yet been announced.

For Ongais, the picture is less clear.

The Hawaiian drove an Interscope-backed Penske PC4 at Watkins Glen and Mosport last year, clearly enjoying his first taste of Formula 1. He will drive for Ensign at Buenos Aires and Interlagos, and would like to do as many races as his USAC schedule permits. This year, of course, he is to lead the Parnelli team in the Citibank USAC Championship Trail.

On the sponsorship front, Ensign will retain Tissot backing, despite Regazzoni's move, but the additional sponsorship from Marlboro was dependent upon Clay's continuing with the team, and will not now materialise. Mo Nunn is also in need of a designer at the moment, for John Baldwin has also left Ensign, joining Regazzoni at Shadow.

Ongais—a few F1 races.

Leoni will drive the second car.



Jarier for ATS in South America

Jean-Pierre Jarier is to stay with the ATS team—at least for the first part of the season. This surprising news came through from France at the end of last week.

We think it surprising because the members of the ATS team made no secret of their discontent with Jarier towards the end of last season, and we were led to believe that there was no possibility of his going on with the team in 1978. However, Jean-Pierre does have a certain amount of sponsorship money available to him, and this has

possibly led to the decision.

Jarier was thought to be driving for Theodore in South America, but says that he is happy at the prospect of continuing with ATS, and that he is sure that the arrangement will last for the entire season.

In the meantime, Theodore still need to find themselves a driver. Masahiro Hasemi tied up a deal to drive the car in the first five races of the year, but his sponsor withdrew when the Japanese Grand Prix was cancelled.

Hunt's Tarmac title

The Tarmac British Racing Championship, which in 1977 has been won for the second successive season by James Hunt, is to continue in 1978 for a seventh year.

The annual winner receives a £2000 cash prize in addition to the unique Tarmac '7Ts' silver trophy (retainable for one year) and a perpetual replica. The runner-up is awarded £500 in cash and the third-placed driver receives £200.

Any British or Commonwealth driver holding an International Competitions licence issued by the RAC will be eligible for the 1978 Tarmac award. Points may be gained in International or International Open events throughout the year on a 20-15-12-10-8-6-4-3-2-1 basis for the first ten finishers overall. A further two points will be awarded to

eligible drivers achieving or equalling the fastest race lap, and double points will be allocated to drivers finishing in the top ten of F1 World Championship rounds, the Le Mans 24 Hours race, Indianapolis 500 or the Spa 24 Hours touring car event.

Previous winners of the prestigious award are Frank Gardner, 1972 and 1973; Stuart Graham, 1974 and 1975; and James Hunt, 1976 and 1977.

The 1977 Tarmac British Racing Championship positions were:

1, James Hunt, 238pts; 2, Alan Jones, 188; 3, Tony Trimmer, 179; 4, Guy Edwards, 141; 5, Peter Gethin, 140; 6, Tony Dron, 103; 7, Val Musetti, 85; 8, Vince Woodman and Gordon Spice, 83; 10, John Watson, 78; 11, Chris Craft, 76; 12, Divina Galica, 74; 13, Derek Bell, 67; 14, Tom Walkinshaw, 64; 15, Keith Holland, 63; 16, Colin Vandervell and Brian Henton, 62; 18, Gerry Marshall, 56; 19, Norman Dickson, 55; 20, John Fitzpatrick, 54; etc.

European G1 prospects

Silverstone will host an excellent day of international saloon car racing on September 17 this year, for they will not only be holding the Tourist Trophy on that date, but also their round of the Trans-Europe Group One championship. It's likely that the latter event will take place early in the day, so that competitors can take part in the Tourist Trophy (for cars up to and including Group 2) later in the day.

This was just one of the facts to emerge from the first meeting of organisers of the Trans-Europe championship in Paris recently. The series will be run for cars up to 1300cc, 1600cc, 2500cc, and 3500cc. The races, apart from the Spa 24 Hours, will be up to 120 kilometres. Total prize money will be around £4,000 per meeting, and the series will have an overall sponsor, who will announce their own plans at a later date.

Apparently all the organisers are very optimistic about it. The dates should work well and the series as a whole stands a good chance of being very successful.

Of the following dates, only one has a query against it, that being Jarama which coincides with the French Grand Prix, where there is almost certain to be a National Group One round. The Zandvoort round coincides with the British Grand Prix, but there is no round of the RAC Touring Car Championship at that race, although it is said that there will be a Group One event, sponsored separately.

The dates are:
April 2, Zolder; April 16, Osterreicherung; May 14, Monza; June 25, Estoril; July 2, Jarama; July 16, Zandvoort; July 22/23, Spa; September 3, Dijon; September 17, Silverstone; September 24, Hockenheim.

Le Mans regs

L'Automobile Club de l'Ouest recently released details of this year's Le Mans 24 Hours in a press release entitled 'Keep on the Right Track'. This they clearly feel they are doing, for there are no important changes in the regulations. And, indeed, why should there be? The club, after all, organises and runs what is still the most important sports car race in the world—indeed, the only important sports car race in the world. They anticipated the fiasco brought about by the CSI's ludicrous decision to split sports car racing into

G5 and G6, thereby landing us with two under supported, poorly attended championships.

The club's decision to run an 'anything goes' race was a wise move. Although Le Mans now counts for no championship points at all, it remains the only race on the long-distance calendar which really counts. Only on the middle weekend of June next year will Porsche and Renault confront each other. We're glad to see that the race will be run in the same format in 1978.



Lole—a narrow escape.

Reutemann escapes

There was tremendous consternation in Argentina last week when Carlos Reutemann was reported missing from a boat trip.

Details of the incident are still sketchy as we go to press, but it seems that the Ferrari team leader took his wife and two daughters on a trip down the River Parana, some 300 miles north of Buenos Aires. On Thursday afternoon, a violent storm suddenly blew up, and when Carlos's boat failed to return, a huge rescue search was organised. Nothing was found, and on Friday morning news of Reutemann's disappearance was broadcast.

Later, however, the owner of another boat reported having seen Reutemann, and eventually Carlos and his family were discovered, safe and sound, on the tiny island of Punta del Palmar. This being a semi-deserted area overgrown with vegetation, Reutemann had been unable to notify anyone that they were safe. It seems that the Argentine ace decided to find somewhere safe for the night as soon as the storm became really intense.

We're delighted that the story had a happy ending after all. One can only imagine the waves of relief through Argentina. Many people were already in mourning for their hero when news of his safety came through.

Baldwins at Shadow

Surprising is the news that Bert Baldwin, for many years the chief designer of Goodyear's Race Tyre Division, has joined Shadow Racing. It's surprising because Baldwin originally left his job to take up another position with Goodyear, designing aircraft tyres.

"I thought I'd had enough of racing, after 13 years of it," said Bert at the beginning of the week. "But I soon realised that I couldn't leave it. By then, of course, there was no way I could stay with Goodyear. They had already made their plans for 1978. Anyway, Don Nichols offered me this job a few days before Christmas, and I was very happy to accept. I'll be working on the development and sponsorship side of the team."

As well as Bert, another Baldwin has joined Shadow Racing, as well, this being John, who was previously at Ensign with Clay Regazzoni. He is to be Shadow's Chief Designer.

Lucky Strike back Martin

Having decided to withdraw their sponsorship from many-times South African Formula 1 champion, Dave Charlton, after two disappointing years in Formula Atlantic where he yielded just one win, Lucky Strike cigarettes (owned by British American Tobacco) have switched their allegiance to Tony Martin.

Martin, who recently spent a week in Europe (which included his annual trip to Bolton), has ordered a brand new Formula Atlantic Chevron in which he will try to prevent Ian Scheckter from taking his third title in successive seasons. Martin will keep his current B39 as a back-up chassis.

Should he succeed in beating Scheckter's regular Lexington March, then he has set his sights on Europe and Formula 2. Many reckon him to be the fastest of the South Africans, and that includes Scheckter!

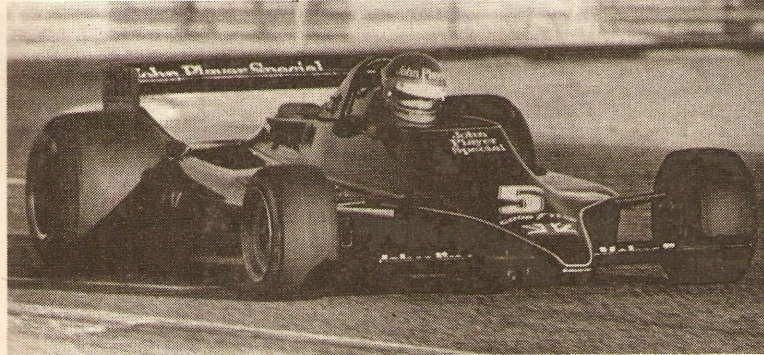
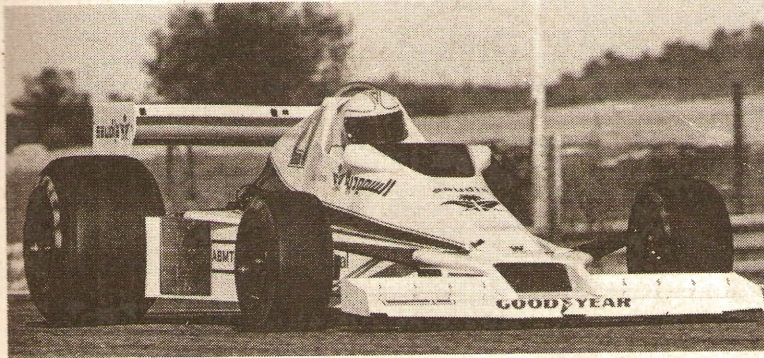
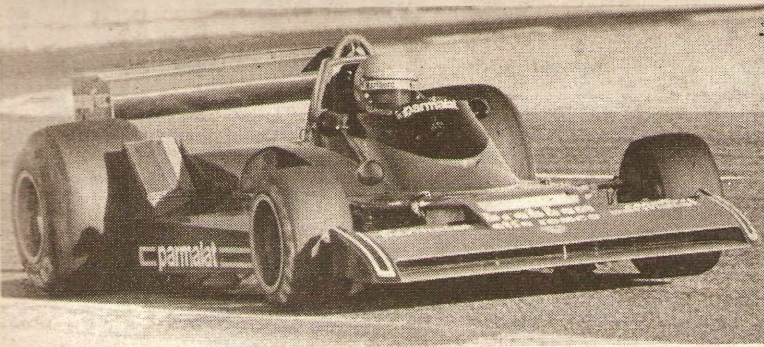
Bell for SA Atlantic series

While several European teams and drivers waited for the Peter Stuyvesant-backed Formula Pacific (Atlantic) series to start in New Zealand, news came in from South Africa that they, too, are also preparing to entertain 'guests' from Europe, although to an even lesser degree than earlier this year when only two teams/drivers went out from England. The one team making the long trek for a holiday in the sun are Willi Kauhse Racing who have converted two of their three existing space-frame Formula 2 chassis (formerly the Jabouille-designed Elf 2J) into Atlantic trim.

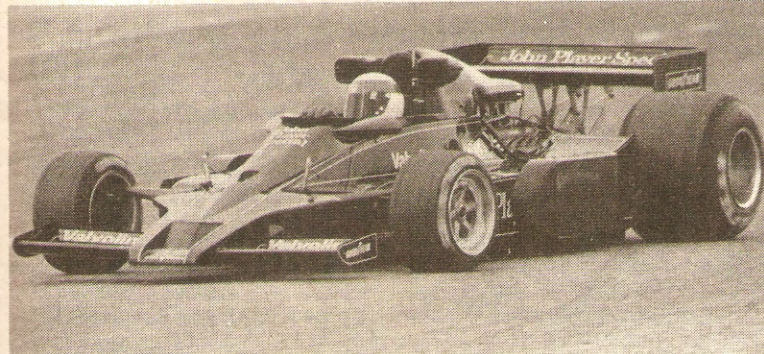
Driving the lead car will be none other than Derek Bell, while the team's chief mechanic, Derek Worthington (who organised the trip) will handle the other one. Worthington's has raced before, his most recent appearances being in Roger Heaven's F2 March 762 last season in G8 races. As for Bell, who last drove for Kauhse in one of his works Alfa Romeo sports prototypes, this is the first time Derek will have tried his hand in Formula Atlantic.

During the past few weeks, quite a few changes have been going on in South African motor racing circles. Philips, who sponsored the series for the past two years, have withdrawn their support and the national season is now without a backer. However, the Kauhse team intend to do better than Rupert Keegan and Gilles Villeneuve did earlier this year. Their three race 'series' starts off at Cape Town on January 7 before moving on to Kyalami (January 28) and Welkom (February 11).

After that, the locals will carry on with just four more races: Port Elizabeth (February 25), Pietermaritzburg (March 25), Bloemfontein (April 8) and Salisbury, Rhodesia (May 28) before the series finishes. This is a new move within SA to cut out having to race during winter months, when counter attractions include national Rugby Union fixtures. Therefore another new season will begin at the end of next September at Pietermaritzburg.



The scene at Paul Ricard was hectic throughout the weeks leading up to Christmas. Top to bottom: Niki Lauda got the revamped Brabham BT45C going very quickly; Alan Jones was most impressed with the new Saudia-Williams; and Ronnie Peterson looked like his old self in the Lotus 79. Below: Jackie Stewart spent very little time in the Lotus 78 but was none the less ecstatic about it.



HEINZ HOFER

It is a very sad duty to report the death in a road accident on December 29 of Heinz Hofer, the Penske Racing team manager.

Born in Switzerland in 1943, Heinz emigrated to the USA and was a ski instructor in Veil, Colorado, when he made the acquaintance of Roger Penske seven years ago. He became a friend of Penske and was quickly captivated by motor racing, taking a job in the car sales side of Penske's American business before moving into racing full time in 1972.

He worked on the championship-winning CanAm Porsches of George Follmer and Mark Donohue in 1972 and 1973, and also on the USAC cars in 1972 (when Donohue won at Indy), 1973 and 1974.

When Penske decided to enter Grand Prix racing seriously in 1975, he invited Hofer to act as Team Manager, and

Heinz undertook this appointment, with Donohue and John Watson as his drivers, with an easygoing efficiency which earned him great admiration. He steered the British-based Formula 1 team through the tragic period following Donohue's fatal accident in Austria in 1975, to the high point of the Penske Grand Prix programme, Watson's victory at the same circuit in 1976.

Following Penske's withdrawal at the end of that year, Hofer was to remain in charge of the British operation, which switched to the design and construction of USAC cars at Wimborne in Dorset. However, Penske decided to ask Hofer to take over the management of his USAC team, running McLarens for Mario Andretti and Tom Sneva, and Hofer spent most of last season in the States, where Sneva won the 1977 USAC title. He returned to Britain shortly before Christmas, and was due to marry his English girlfriend, Linda Wood, at the end of this month.

To her, to his parents and to his many friends, AUTOSPORT offers its condolences. Heinz Hofer was an immensely popular figure, always in command of the situation but never unapproachable, and he was one of the most respected team managers in our sport. Motor racing is poorer for his loss.

● Heinz Hofer's funeral took place at Canford Cliffs, Poole, last Tuesday.

● We regret to report the death, a fortnight ago, of the veteran USAC driver, Sammy Sessions. A regular competitor at Indianapolis, Sessions was best-known as a sprint car driver. He lost his life during a snowmobile race in Minneapolis. Sessions was 42.

Briefly . . .

● We hear that Mike Earle, team manager of the Bognor Regis-based Lec Formula 1 team, received an ingracious reply when informing certain gentlemen of his team's intention to join the Grand Prix circus after the two South American races. It seems that even with a budget reported to be in the region of £500,000 and the announcement of a large commercial sponsor imminent, the team still won't be in favour unless they conform with the 'system' and take in the Argentine and Brazilian races this month . . .

● We omitted to mention that cash prizes of £50, £25 and £10 accompany the helmet prizes for the top three in the Griffin Helmets Competition published in the last issue of AUTOSPORT.

● According to the French newspaper *L'Equipe*, the new two-year contract signed between Copersucar and Fittipaldi Automotive is worth \$2,159,000 a year to the team. So short of money they ain't. . . .

● A rumour from the many meetings held in Paris recently is that the CSI and FIA are interested in limiting European championships to 'inner-Europe'. This comes from the vast costs of travelling to such circuits as Estoril and Enna for professional teams who could well have another event two weeks afterwards. The subject of limiting the races was only mentioned in passing, but it seems likely that subsequent programmes will be looked at with reference to travel costs.

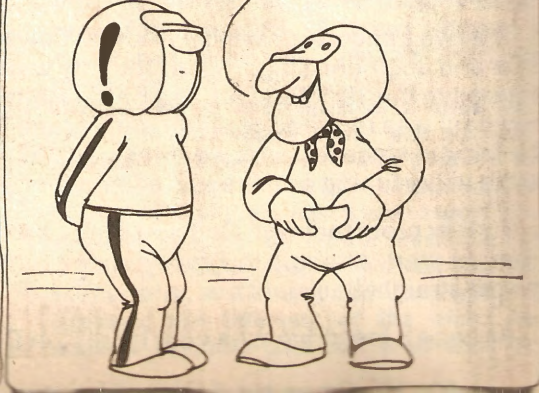
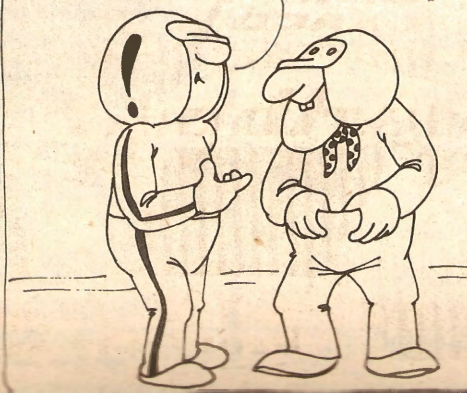
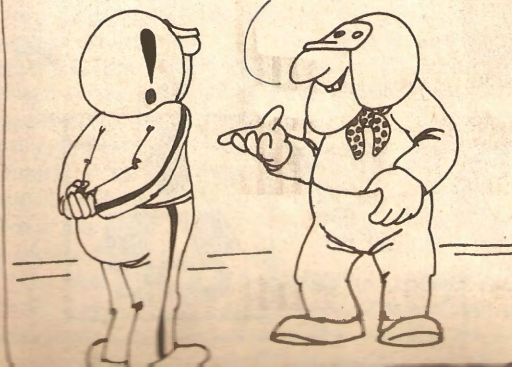
catchpole

by Barry Foley

I SAY, I SAY, I SAY, WHO'S FAULT WAS IT THAT RONNIE DIDN'T GO QUICKER IN THE TYRRELL?

I DON'T KNOW, WHO'S FAULT WAS IT?

HA! SIX OF ONE AND HALF A DOZEN OF THE OTHER!





Cowan and Syer took victory with a calculated drive.

Ivory Colt

Cowan's calculated drive to victory—Singh makes it Colt 1-2—Disaster for Peugeot team—Report: PETER NEWTON—Photography: HUGH BISHOP.

Just three weeks ago, in late December last year on the Ivory Coast of West Africa, an extraordinary rally story unfolded before our eyes; a story which, at the outset, seemed nothing more than a pipedream but which, after only one day and night, seemed suddenly almost inevitable.

This was the story of Andrew Cowan's richly deserved and professionally executed victory on the International Rallye du Bandama in his diminutive 1600cc Mitsubishi Colt Lancer. It was a victory made momentous by the wholesale collapse of a Peugeot effort so strong, and ranked in such depths that no one could really have expected a disaster of such magnitude.

The collapse, however, should not detract from another steely performance from Cowan who completed a highly successful year with a drive of calculated determination and sustained high speed. When there was a Peugeot in front, Cowan maintained the pressure thanks to Mitsubishi reliability and when there was nothing ahead, Andrew kept calm and relaxed, reeling off the vast distances with a clockwork precision which only dirt in his fuel tank served to punctuate.

He was followed home by the team's other works entry for Joginder Singh/Mike Doughty. Joginder drove the entire distance without the benefits of detailed notes

(some of which was also spent without the use of a Halda—vital in these conditions) and during the rally he lost large amounts of time with various irritations including driving for 800kms with only three brakes after he had lost a complete rear wheel and brake drum assembly!

Of Peugeot's highly paid drivers, only the old ex-works 504 of Guichet finally crept home third overall, nearly four hours behind the winner. One after another, the French cars were either hurled into mud holes, inverted or they simply wilted under the strain. In addition there were one or two lapses in the complex service schedule which had to be drawn up for so many cars, resulting in the fact that Mäkinen received no help when he needed it most, and Nicolas was 'abandoned' to his fate, when he could have been fighting back strongly. Lefebvre succumbed to the speed of Andrew Cowan; Mikkola simply lost concentration and paid the penalty with a most unpleasant experience in a very deep mud hole; and Pescarolo... Henri lost his keys, failed to start on time, had an accident on the way to the classification test, and was eventually ignominiously disquali-

Route and Rally details

Including a day devoted to nothing else save a minor classification test, this year's rally occupied five days. Its route was very similar to that of last year but the timing had been considerably tightened so that the air of a jaunt through the bush disappeared, to be replaced by hard road racing as never before seen in this part of Africa. Averages were set at around 75mph throughout, and sections were generally well over three hours duration—a long time to sit and read notes in the heat and the dust.

The surface in the Cote d'Ivoire is very different to that of Kenya. Here the road is very hard beneath a layer of soft 'ball bearings'—fine shale and sand which requires a soft compound for maximum grip. Wear rates, however, are at a premium with the long distances involved, so the tyre manufacturer's problem is a classic one—wear versus grip.

The rally proper is divided into four main loops. Starting in the capital city of Abidjan on the coast, the first section starts at 12.00 midnight, taking crews to Yamoussoukro via a circular route of 1,053 kilometres including two very difficult sections, Akrezi/Mafere (47kms) and Arrah/Kregbe (36kms) both of which are slippery, narrow, very rough in parts, and set at 'impossible' averages.

The second section, tackled mainly at night, heads west from Yamoussoukro to the coast at Taboo before returning via Danane and Man, a total of 1,844kms. Traditionally, this section is subject to rain, as it was again on this occasion, and it accounted for many contenders, including the leader, Mikkola.

The third leg, which took place on Saturday, heads north out into the open grassland and bush which borders on the scrub at the southern reaches of the Sahara. Of 1,550kms duration, the terrain is especially demanding and the very long sections put severe strain on competitors.

Finally, the run back from Yamoussoukro to Abidjan on Sunday is undertaken amid much weekend traffic which considerably heightens the dangers inherent in rallying on open (as opposed to closed) roads. This route is an exact repeat of the first leg. The only place on this mammoth tour where a crew can relax is in Abidjan itself, and for approximately 40kms either side of Yamoussoukro where the tarmac road precludes the use of notes.

In all, about five critical sections are deliberately made 'impossible', but the quicker cars can just clean most of the remainder and still include a brief halt for service. But all the above assumes that everything runs exactly according to plan, and as this last year so dramatically proved, it does not necessarily do so.

The northerly loop is the most difficult challenge. In effect its entire route is encompassed by just two sections of seven-and-a-half and five hours respectively—a long time to read notes with only one stamp of a time card to break the monotony. One's admiration for those who succeed here grows the more one comes to comprehend the nature of the challenge. The speed of the event is not hard to gauge either. In Corsica, Johnstone Syer's pace notes averaged three kilometres to a page. On the Bandama his notes covered 25 kilometres to an identical-size page.

fied for infringing Parc Fermé regulations when the team were found still repairing their car just before the midnight re-start.

For Peugeot the Bandama was a nightmare from which one hopes their competitions department will recover. That they should suffer from driver error to virtually the same extent as mechanical failure must surely have been most unexpected; but it is important to realise that the Bandama is no longer an obscure African event of little international importance and with little to recommend it. The challenge is immense, greater perhaps than that of the Safari, even if it is still, as one co-driver described it 'a gentleman's rally'. Furthermore the Bandama is now a qualifying round for the World Rally Championship for Makes in 1978 (WCR) and as such must now be viewed most seriously by manufacturers such as Fiat and Ford.

Tough it certainly is, but a gentleman's rally still. The sections are very long and arduous, yet rallying never endures longer than approximately 13 hours without a major rest halt, and adequate sleep can always be obtained.

Formerly in the hands of Claude Bertrand, the Bandama Rally was smoothly adopted by Promocourse this year on the latter's departure for new ventures. Promocourse, the Paris based motorsport promotions company have built up strong and enduring links in the Ivory Coast and it is no surprise to discover that they not only promote the interests of the event but actively organise and run it as well. All

BANDAMA RALLY

BANDAMA RALLY

continued

major rally undertakings are looked after in most efficient and pleasant style by Jean Francois Rageys, his deputy, Charles Touchard, and a cheerful team of assistants skilled in the affairs of rally administration. The local club, FISA, provide much enthusiasm and manpower but it is Promocourse who provide the professional skills beneath the surface. Like so many things in the independent state of the Cote d'Ivoire, the influence of the French guiding hand is strongly in evidence if one cares to look!

Promocourse have been associated previously with many successful ventures including the excellent and late lamented Morocco Rally. It is largely due to their unstinting efforts, coupled with the eager co-operation of the Ivory Coast government and Tourism departments, that the status of the event has risen so rapidly (although like so many CSI decisions, one wonders if the move to make the Bandama a WCR qualifier—Southern Cross was the alternative—was not in fact taken before this year's event even took place? The ways of French bureaucracy remain a jealously guarded mystery). As it stands the rally will

likely prove a most satisfactory addition. There is sufficient money and promotional ability available to ensure support and entrants, while the terrain is demanding and arduous.

There remain one or two question marks. Were the rally to be moved from December away from the dry season, problems might accrue, particularly on the wet Taboo/Toulepleu section in the west where the road passes over many small river bridges in tropical jungle; but at least the current problem, that of overtaking in severe dust conditions would be avoided. Bandama in December can be a nightmare for crews caught in the dust of a slower car. Overtaking is almost an impossibility, even with large time increments separating the start times of each competitor. First car on the road maintains a great advantage.

Secondly there is the problem of 'educating' the locals, a problem highlighted by Andrew Cowan in the interview below. However, these problems will doubtless be attended to in efficient style by Promocourse, and next year at least the rally will remain at its current date in the calendar. Perhaps its unique pioneering atmosphere, the feeling of a 'gentleman's rally' will be lost for ever with the arrival of WCR status; we hope not; the Cote d'Ivoire is a superb experience.

RALLY

Pescarolo began the Peugeot slide. At first it was nothing more than a chink in the armour when Henri forgot his keys, failed to locate a spare set supposedly taped to the chassis, was forced to break open the car and finally got it started with six minutes remaining to complete 23kms. He had his accident with another car some 10kms short of the Djibi classification test venue. The impact pushed the Peugeot's engine back several inches, and badly mauled the front. He was allowed the possibility of re-starting that evening, but was credited with the slowest time at Djibi, plus 30 minutes, plus 20 minutes for his failure to appear... and he had to start at the very back of the field.

Prospects were never bright. His car was disqualified before the midnight re-start when the team failed to finish the repairs outside *Parc Fermé*.

Another cloud on the horizon, as yet barely visible, blew up when Jean Claude Lefebvre rolled on a tight righthand adverse camber downhill junction during the course of the classification test itself! He clipped the bank on the inside while sideways under braking, and the heavy Peugeot escaped from his clutches. He was a little upset, but less so than his co-driver whose Whisky bottle had disastrously been left with its cap loose!

It was when Makinen's differential seized through lack of oil towards the end of the first section while Timo held a confident lead that the first shrill winds of disquiet shivered through the Peugeot ranks. On the Kregbe/Tiebissou road, Makinen and Liddon climbed out, jacked up the car and removed the offending axle, preparing the car for a replacement which would surely follow. They hoped to be on their way again in just under two hours. They could not have known that Mikkola, who also had a leaking differential and who was now leading, had asked for and received the spare unit that was awaiting just such an emergency at the end of the section. *Hanan*,



Cowan (left with champagne) and Syer celebrate their victory.

It certainly has been a remarkable season for Andrew Cowan; third overall for Colt on Safari, first overall in the Singapore Airlines London/Sydney Marathon for Mercedes, and now first overall for Colt once more on a rally which Andrew and many other experienced crews will tell you is probably more demanding even than the Safari—the International Bandama Rally in the Ivory Coast, West Africa.

At last Cowan is beginning to receive at home some of the acclaim with which he has been all too familiar in Japan and the Antipodes for years. Just after the Bandama, and with the dust and fatigue of 5000 very hard kilometres still very much in evidence on their faces, Andrew and co-driver Johnstone Syer talked to PETER NEWTON about this latest triumph in the context of a highly successful year.

Q: Before we discuss the Bandama triumph, can we just talk about the extent of your popularity in Japan etc?

AC: Well, people don't seem to realise that I'm on television over there just about every night. In Japan they've heard of just two rallies, the Southern Cross and the Safari, and I spend weeks commuting to Japan, doing commercials for Yokohama (tyres) and for Mitsubishi of course. Over there, people recognise me in the street!

Q: ... And what did you think of the Bandama as a challenge?

AC: A bloody sight harder than the Safari, I can tell you! Really I thought the Safari was almost easy compared to this. The long sections tend to accentuate it. The monotony gets broken up on Safari; say three hours and the section's over. On Safari that's a long section, but here it's a comparatively short one.

JS: In Corsica we were all shouting about a 141km stage—but that's only really an hour-and-a-quarter's work! On this rally they keep you at it solidly for seven hours at a stretch!

AC: This is also the fastest rally I've ever contested. The set average speed for the last four days has been between 75 and 80mph. Obviously we haven't managed it exactly, because we've got penalties, but we've been averaging over 70mph for most of the time. The roads aren't straight either. They're always curving and the car is always sliding. In the Safari you might follow a dead straight road for say, 10 kilometres, but you'd never do that here.

Q: This may sound like an exceptionally dumb question, but how do you pass the time on these long sections?

AC: It's amazing really. Every time we stopped to refuel, I'd zero the odometer and in between times I'd train myself not to look at it. It hardly seemed any time at all before I gave in and looked—and we'd done 160kms!

Q: How do you pace yourself though?

AC: It would be easy to exhaust yourself over the first 20 miles if you wanted to. You've got to sit back in the seat and relax your muscles, get it going that way. Keep tensed-up, and you start to get tired rapidly, that's when you start to get slow. I'm lucky, I don't tire easily, although this time my arms did get a little tired, and that's never happened before. The only time I ever complained of feeling tired was about three hours after the start, but then you're always tense at the start. There's another comparison with Safari here. In East Africa, if you've got a 60km section, you pull into the control, and, sure, you're late, but the navigator gets out, he checks in, gets back in, and off you go again. In other words, you can always see yourself getting through. Whereas you start a seven hour section here and you think, 'My God, it'll never end!'

Q: How do you go about noting an event of this extreme length?

AC: We note absolutely every corner, every bump, everything. Even with drifts, I note which side of the road I'm supposed to be on when I hit them. I grade my dangers from one to four. The fifth is STOP! Those 'danger' are relative to the situation.

however, did not have this unit fitted; he merely took it with him as an emergency spare. At that time there were no further spares in the area, and Mäkinen was 'abandoned' to his fate, eventually hitching a lift out of the section in a Subaru service van after a wait of five-and-a-half hours! We gathered that the Peugeot service crew at the end of the section were not overly keen to rescue the Finn since it meant driving against rally traffic.

Hannu at least was in a secure lead, but he had had a fright. Pulling out to overtake the first of two articulated trucks on the Bocanda section during Friday morning, Mikkola had reached the point of no return and was travelling at about 140kph when the truck itself pulled out to overtake, the giant trailer flicking the Peugeot off the road like a swotted fly. The car plunged three metres down a bank and into the valley below where it spun wildly as the occupants awaited what they regarded as an inevitable roll. Fortunately it stayed on its wheels and the offending truck stopped to tow them out with only minor body damage—just one of the hazards of rallying on the Ivory Coast.

During the following evening as the rally raced west, Hannu found that his leaking differential no longer leaked if he switched off the differential oil cooler pump. He thus did not bother to change the unit, electing instead to change the steering rack in Taboo. He began the following section 17 minutes ahead of a hard-charging Cowan, but just 100kms later his rally ended on a tightening 'K' righthander (which was not on his notes). In the only really wet sector of the rally, the Peugeot arrived too fast at a drift (a sea of mud across the road concealing severe transverse ruts). Perhaps Hannu lost concentration momentarily, but at just after 02.00 on Friday morning, the Peugeot ran wide and the ruts flicked it over onto its roof before it again plunged off the road, losing its screen in the process. Upside down, the car careered into a massive mud hole, the open 'mouth'

ling at the time. In other words, if I'm doing 100mph and Johnstone calls one danger, it means that I can take the hazard at about 85mph.

This was another aspect which surprised me about the Peugeot crews. The corner where Nicolas rolled... the approach was very fast, about 100mph down through some sweeping corners, over a brow and into a righthander with what you would call firebreaks straight-on. During the recce I slid to the very edge of that corner, going quite slowly in a standard road-going Colt. And in our notes we had it as 'slow right, four dangers!' In other words, among all that 100mph stuff, that corner was second gear. The only reason I clipped the Peugeot was because I was almost mesmerised by these two T-shirted figures and no car visible. I was trying to make out who they were instead of picking the line correctly. The point I'm trying to make though is that that was a very obviously dangerous corner. I know Jean Pierre had trouble with his brakes, but both of them have been to Bandama before.

There's a similar situation with Hannu's off. The place is the only really wet and muddy piece of road that we had on the entire rally. It was coming up north from Taboo on the coast. This is the rainy area in the Ivory Coast; thick tropical forests etc. When we started the section, there were a number of deep mud holes, and I became very alert, waiting for some deep drifts, and you always get them on corners, because of the camber (a drift is described as a naturally fashioned waterway within which rain water flows across a road, gouging deep ruts and corrugations). We had these drifts in our notes as 'drift unseen, four dangers!' Which at the speeds we were going then, sometimes meant dead slow or even stop. You could'n't actually see the drifts at all, but they were there, and until you were on top of them, they were invisible.

Where we went wrong on this rally, however, was in exaggerating the dangers and this stemmed from the fact that we completed the recce in a standard car, so naturally everything seemed that much more severe. However, it was quite a simple matter to adjust oneself 'up' a rung.

So it registered with me that we were going to come charging into one of these quick corners and it was going to be sea of mud and corrugations underneath. That's what Hannu did, and lost it and rolled. He was 17-minutes ahead of us at the start of that section which is nothing at all on a rally like this. On a Peugeot it takes them about 20 minutes to change the front struts, and they were servicing a helluva lot more than we were.

Q: ... which brings us to the cars. ...

AC: We've changed nothing at all on our car, except fuel filters and that was due to dirt in the petrol. No struts, no shock absorbers, nothing. Don't think I drive it slow either. The only time I've eased off on this rally was during the last day. I punish those little cars; they get a tremendous hammering. I drive it absolutely flat, everywhere I can.

JS: And we were only two minutes behind Jean Pierre Nicolas in Yamoussoukro that first time.

AC: When I hit really rough patches, I tend to go

left by the vacant screen as if as a huge shovel which scooped up mud, earth and stones into the cockpit. Arne Hertz lost his glasses and the intercoms disappeared. It was fortunate that the car chose that moment to right itself, for the crew could even have drowned in the glutinous myre of mud. The forlorn 504 was then struck by Assef's equally wayward vehicle, which resulted in a savaged driver's door. So it was that a very dirty and secondhand Peugeot, along with a severely chastened driver, returned to Yamoussoukro the following morning. The car itself was not even extracted until seven hours after the accident.

Jean Pierre Nicolas' fortunes cast still more gloom upon the camp of the French. His car had been giving trouble right from the start, for in addition to a very soft and unpredictable brake pedal, Jean Pierre's engine was very sick. The brake pedal was not returning very cleanly to its correct position, and it was as he struggled with the car at the start of the second leg that things began to go seriously wrong. Scarcely 100kms from Yamoussoukro, on a long lefthand bend, the Peugeot stepped out of line as Jean Pierre fought to control it with a sticking throttle and poor brakes. The ruts helped it over onto its roof and it stopped on the road upside down and without a screen, where it was promptly clouted by Cowan as he came past. This was a dangerous corner for sure.

There then began a major ordeal for Jean Pierre. On account of the fact that it took him so long to summon help from a local village to help right the car (about three-and-a-half-hours) he was also 'abandoned' by Peugeot service. Thus he eventually re-started without a screen, dressed only in T-shirt and trousers. For 300kms he drove without goggles or any other protection in the dust and the darkness before he and Jean Todt were able to equip themselves with more suitable attire. However, it was a further 1,500kms before Peugeot were able to replace the screen.

faster because I know I can make up time while the others are easing off. The Colt can take it alright!

Maybe I'm in a fortunate position in having a car that's not really competitive at the start. When we started the Safari, I reckoned we could win the rally. Johnstone didn't believe me, but it was proved to him within about 24 hours. We were out on our own. Then of course we got stuck in a mud hole and had that shunt, but we could have won. Sure I'd love to be in a car with some more power, but as I said to Johnstone after our recce here, while I don't think the Lancer is the right car for these conditions, there's one thing in its favour, the others are going to be hitting these bumps 20mph faster than we are, its bound to do more damage. I felt we could make up our deficiencies in not needing to service regularly. Thank God we didn't. We had great service crews but it was every 1000kms before we came across a mechanic who could have solved a serious problem. We were two minutes behind Nicolas on that first leg, but we stopped for petrol which cost us ten minutes trying to sort out a fuel problem.

JS: The problem first appeared early during the section. We didn't know what it was to begin with, but there was a bad misfire, which seemed to clear itself, and then just down the road from Yamoussoukro it almost stopped. On the third night, everything seemed fine. We'd found the dirt in the filters at the start of the second night and all was well, apparently. That was until we were on the road to San Pedro when the car suddenly just stopped altogether. We were round by the boot, peering in with torches when Andrew had this brainwave and blew down a tube into the tank. The tank pick-up pipe was blocked. As soon as we'd done that, she was away again as though nothing had happened, she never missed another beat.

Q: You must get an awful lot of satisfaction out of these long distance events. ...

AC: I do. But I think I'm too old to get stuck into forests now. I love these rallies where you can get stuck in, where there's a really hard grind, because I don't get tired. If I'm ever tired then there's going to be a lot of people dead! On an event like this, its not so much a question of pacing yourself, more the business of setting a pace so as not to kill yourself mentally and physically.

Q: What about your tyres, they weren't exactly right for the conditions were they?

AC: No. The compound was far too hard. For a hard surface with fine gravel and sand on top, you need a soft compound. We were planning for tyres to last 600kms but we were completing 1500 kms with the front sets and about 700 with the rears which we expected would last about 300! We had one puncture and I also hit a huge rock which bent the wheel but didn't puncture the tyre! Yokohamas go on and on!

Q: How does the Bandama compare with Safari on the 'fun' rating?

AC: Safari is far more fun really. The atmosphere in Kenya and the enthusiasm of the locals is altogether different and much more stimulating. Everyone in the whole of Kenya knows the Safari, everyone's on holiday, and the roads are much more free of traffic;



Mikkola was just one unlucky Peugeot driver.

they understand that the rally is due and take precautions of their own. You slide off the road in Kenya and a bunch of locals won't even let you use the jack, they'll hold the car up while you put the wheel on! But here, you go through the villages in the north and the people are running away from the cars. You meet countless numbers of them on bicycles and they're so frightened, they simply turn right into the bush when they see you!

On one section we came round a corner with Johnstone reading notes, and there in front of us was this bloke cycling along with his girl friend riding side-saddle on the back. They were 50 yards away when we came round the corner but it took them 20 yards to react at all. Then this couple just turned sharp right into the bushes when they realised what was happening. Groceries went sailing up into the air with the bike, and there were arms and legs flying in all directions—they just disappeared, a mass of legs, feet and arms—a spectacular 15mph accident and we were still 30 yards away without any danger of hitting them!

In Kenya, the rally is the one piece of entertainment that the locals have in the year, and they love it, whereas here, they're not educated yet. But then of course, its early days.

Q: On a serious note though, this must be a very dangerous rally, more so than Safari?

AC: Absolutely! We've been running first car for the past three nights, and its terrifying. We met a truck today (the last day of the event) going sideways. He panicked when he saw us, swung right and nearly lost it. I didn't know which way he was going to come at us. The first night, we were lucky and met our share of the traffic on the straights. Towards the end of the third night we had a helluva fright though. My car was going sideways, quickly. It was out of balance and I could have put it almost anywhere I wanted when we met this Peugeot. Unfortunately the driver panicked again and braked, instead of letting me sort it all out. He then lost control and we ended up with Johnstone sitting on my knee—the accident looked like it was going to happen on his side of the car!

The organisers were trying to run the most dangerous sections of the event in darkness but the final day was dreadful.

JS: I dread to think what it would have been like on the last day if there'd been three or perhaps four cars separated by 20 or 30 minutes. That last section in the Sunday morning traffic was crazy.

Q: But you must have been well satisfied with the Lancer?

AC: That's an understatement, I can tell you. The only time I've ever retired in a Lancer was on the Border Rally just before the RAC when I tried to get out of Kielder without any water, and blew a head-gasket. Its a fantastic little car. Its a sad prospect that they're pulling out next year, even if it is for only one year. That car could still go and win the Safari. The team have been fantastic too. Without Iwao Kimata it would all have been to no avail; he is just fantastic. I'd say he's Peter Ashcroft, John Griffiths, Mick Jones and more, all rolled into one; unbelievable.

BANDAMA RALLY

continued

In the end it was all in vain, for the engine was consuming oil at a glutinous rate and finally, at Mossou, just before the finish of the second leg, the end was at hand. Once again the oil level was low, the mechanics put in four-and-a-half litres, but when Nicolas re-started the car, there was a four second lap before the engine sluggishly indicated oil pressure. The oil pump had obviously been damaged by the continual low levels in the sump and the result was inevitable. Ten kilometres farther on, and a connecting rod broke, bringing another determined effort from Nicolas to an end.

At the end of the second leg, Cowan thus led Lefebvre by 32 minutes, with Joginder a further 25 minutes behind the Frenchman in third place, and local man, Assef (Peugeot 504) fourth overall. Lefebvre had been going well to climb up the leader board, but soon after the start of the third and northern leg he assisted the storm clouds rolling in on the fortunes of Peugeot by rolling his 504 20 metres down a bank and into a ditch after a brow over which the surface changed from gravel to asphalt. Assef, who had lost 20 minutes during his tangle with Mikkola's stricken V6 and a further 10 minutes having a replacement screen fitted, went off the road very shortly after Lefebvre's departure, rolling his Peugeot after a brow some 15kms from Tieme, so that Mitsubishi had almost half the rally still to complete—totally unopposed!

For Cowan it was a situation to savour and yet to ponder at . . . "either of those V6s could have won it at a canter" he remarked; and certainly Hannu Mikkola would have agreed with him! Andrew himself had been repeatedly bothered by fuel starvation which remained a mystery for much of the first leg until it was finally diagnosed as dirt in the petrol. Apparently cured with new filters etc, the trouble appeared during the third sector and for some minutes the Lancer lay silent at the roadside before Andrew attempted to blow into the tank as a last despairing resort. The extra pressure was just sufficient to dislodge the dirt which had blocked the fuel

Mitsubishi

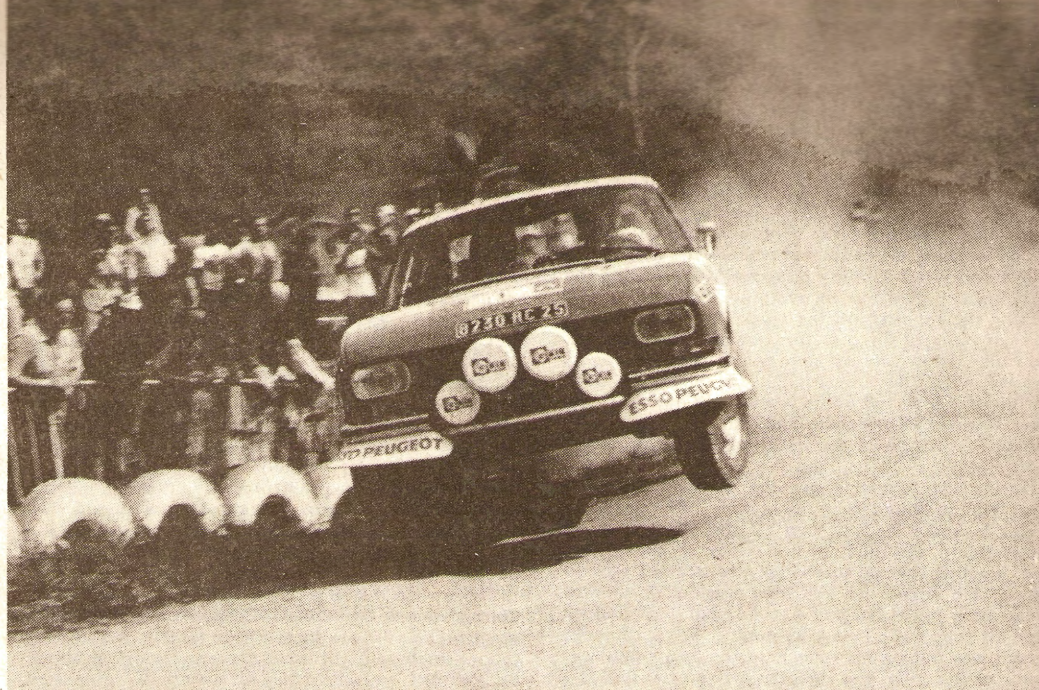
Their sole opposition centred around two Mitsubishi Colt Lancers driven by Andrew Cowan/Johnstone Syer and Joginder Singh/Mike Doughty. These two cars were both Safari veterans that had literally scarcely been touched since. Cowan's car had new springs, shock absorbers, carburetors, alternator and differential, while Joginder's car had contested the East African rally championship rounds in addition to Safari and had rather less new parts. In fact Joginder's struts had not been changed since before the start of the Safari, had completed at least four rallies in East Africa, and were to complete a further 5,000 punishing kilometres in the Ivory Coast, still unchanged! The engines in both cars had been given scarcely a cursory glance since Easter, Cowan remarking that the valve clearances had been checked, and that the carburetors had only been changed because some evidence of corrosion had been discovered—the result of the car lying idle for such a long period!

The team was run by the importers (Socida), financed by Chrysler International, with drivers etc supplied by Mitsubishi themselves. Under the expert control of team manager Iwao Kimata, were a mixture of East African and West African personnel, only a few of whom knew much more than how to put petrol into the cars, and most of whom who knew considerably less. Although nine service cars were provided, spares were almost non-existent and any serious problems would almost certainly have been fatal to the team's chances.

Colt were present for two reasons: marketing and experience of West African conditions—as Iwao succinctly remarked—"you don't bring the first team to play against a village side". He was not referring to Peugeot as such; rather to the fact that Mitsubishi had intended this venture as a trial, an experiment to stand them in good stead for future years.

Joginder's business commitments in Kenya meant that he was unable to make an appearance before the day prior to the start so co-driver Mike Doughty and a local driver from Socida, the importers, made 'danger' notes before his arrival. Andrew and Johnstone meanwhile were hard at work with their detailed practice (see interview elsewhere) which was to result in even more hard work for Johnstone when the crew discovered the unsuitability of the intercom system and the co-driver was forced to shout his notes for four days which produced a very hoarse Scottish accent by the end! Johnstone prefers a sore throat as an alternative to a sore head—he knows how to deal with the former!

The Colts weighed in at 890 kilos (or approximately similar weight to a good forest Escort) their 1600cc engines producing around 150bhp at 8300rpm. The Lancers' five speed gearboxes are modified to give a 1:1 ratio in fifth and the standard 4.2:1 differential ratio gives way to one of 4.6:1. Cowan remarked that the best power figures he has ever seen for one of these engines was 53bhp on his last visit to the Southern Cross. There is little doubt that the engines which took both cars to this superb 1-2 finish on the Bandama would have been considerably down on this figure, even though they both sounded superbly crisp at the finish. Altogether the Colt effort, despite its apparent lack of resources, was admirably arranged by Iwao Kimata, whose supreme confidence in the cars was justified in overwhelming terms.



Makinen's press-on style proved no help in the end.

pick-up pipe, and the Colt burst into resilient life again.

Thereafter there was no more trouble and the little Japanese car sang crisply towards the still distant finish. Both cars were overheating a little but with interior heaters full on(!) the temperature was kept within bounds.

Joginder had a rather more fraught time than Andrew in that soon after the start of the third (northern) loop he lost a complete rear wheel and brake drum after a service halt during which the tyres were changed. Despairing of ever finding the nuts, the crew took one each from the surviving three wheels and fitted a spare. Then began a perilous 800 kilometre journey on three brakes which gave both crew members a number of frights and lost them 17 minutes during the following and final morning while a new unit was fitted. One of the Bandama Rally's few organisational hiccups occurred during the second (western) etape on the Danana/Man section. A re-route in this area had been planned before the start of the event by the organisers and involved the avoidance of a number of bridges thought to be unsuitable to rally traffic. In the Ivory Coast (like many other places) its often best to carry out one's own instructions lest they are not carried out at all, and while the police did attempt to carry out a re-route, it was not done in the correct place and no competitors were given any prior warning of such impending action. Cowan was first on the road and upon being confronted by 'the law' telling him to proceed on a route contrary to that expressed in the road book, he naturally took the latter's advice and continued with the rally as he assumed the organisers had planned it. Many others, who would not have been on full pace notes in any case by that stage, and including Lefebvre who undoubtedly was, took the police-requested route (which was shorter). But then Lefebvre made the mistake of booking into the Man control four minutes early! He was thus docked a

total of eight minutes penalty. Cowan meanwhile had succeeded in cleaning the section on full pace notes despite the fact that it was a little longer. The dual routes were the subject of an inevitable protest. But when an FIA meeting had resolved to scrub the offending section, the new ruling itself was the subject of another protest from local drivers who considered that their efforts would have been unnecessarily wasted. An honourable compromise was reached by a decision to retain the section but scrub the penalties! A triumph for diplomacy!

Peugeot

Having won this rally for the past two years, Peugeot arrived in Abidjan with strength to spare. Their involvement with the Bandama has increased recently, but no one had envisaged quite such a show of strength, not even certain members of the team itself, some of whom were openly sceptical about the wisdom of entering as many as four coupés on a rally where to service is to lose time, and reliability (for which the coupé has not yet acquired a reputation) is at a premium. There were V6 coupés for Makinen, Mikkola, Jean Pierre Nicolas and Henri Pescarolo; a brand new 504 Berline for Jean Claude Lefebvre, and ex-works cars for Jean Guichet (who still retains ties with the company dating back to the first rally involvement of the 504 series) and Assef, a quick local driver.

In all there were 21 Peugeots in an entry of 59 cars, which gives some indication of the company's strength on the Ivory Coast, a strength which is now being threatened in the market place by heavy Japanese selling, particularly to fleet buyers. A Peugeot is not now the only car to have . . . it is an object of status.

Not many rally teams can boast to having the combined talents of Makinen, Mikkola and Nicolas on their strength, but then of course Peugeot do pay them handsomely for the privilege, and almost all the drivers had been to Bandama on more than one prior occasion. Thus their recess took them no longer than six or seven days while Andrew Cowan, Johnstone Syer and Mike Doughty (having never visited the country before) spent around ten days 'up country'.

No less than three of the large, slightly old-fashioned looking coupés were new, and were fitted with Weber carburetors while there was one 'used' version which in Timo's hands had covered a small Safari distance. This car was fitted with Solex induction and intended for Henri Pescarolo. The team had been involved in much pre-event tyre testing in conjunction with Timo Makinen which was said to have centred around a new puncture-proof system which Michelin, in their traditionally secretive way, were not anxious to discuss, and which in any case made no appearance on the rally. Instead Makinen appeared at Jibi with the only set of rallycross RC1 tyres which the company had brought with them (including differing compounds front and rear?) while the other drivers made do with 'Noras'.

In addition to testing three different compounds of tyre, Makinen had also been testing a new lighter weight axle and a five speed gearbox—both of which broke after a very short spell. In other respects the coupés were very much as seen on prior occasions, there having been very little progress made in development recently. The V6s are still built 'in house' and still turn out around 225bhp, which for a car weighing at least 1,250 kilos and with comparatively low (numerical) gearing for a rally car, is considered more than adequate. Top speed is geared to around 210kph. Since Safari last year, the coupés have gained (besides more weight!) a differential oil cooler and an electric fan (which cannot be used at night owing to the drain on battery power) but there was otherwise little else to report. At scrutineering the team were forced to remove the spare alternators which the cars have carried since their first appearance, owing to international regulations.

9th International Rallye du Bandama 15/20 December, 1977

1. A. Cowan/J. Syer (Mitsubishi Colt Lancer), 4hrs 45m 27.2s penalties;
2. J. Singh/M. Doughty (Mitsubishi Colt Lancer), 6hrs 18m 33.7s;
3. J. Guichet/J. de Alexandris (Peugeot 504), 8hrs 23m 44.9s;
4. M. Mitri/M. Copelli (Datsun 180B SSS), 10hrs 41m 32.5s;
5. J.-F. Vincens/F. Giallollacci (Mitsubishi Colt Lancer), 11hrs 10m 42.9s;
6. G. Deladriere/J.-P. de Clerck (Peugeot 504), 12hrs 49m 46.4s;
7. A. Choteau/P. Destailhats (Peugeot 504), 13hrs 13m 39.3s;
8. J. Ferber/M.-P. Ferber (Peugeot 504), 17hrs 15m 56.7s (first G1);
9. G. Tuffal/A. Degioranni (Datsun 180B SSS), 18hrs 54m 49.2s. (59 starters—9 finishers.)

Principal retirements

Timo Makinen/Henry Liddon (Peugeot 504 V6 coupé), differential, EP13; Henri Pescarolo/Gerard Flocon (Peugeot 504 V6 coupé), Parc Fermé infringement EP1; Hannu Mikkola/Arne Hertz (Peugeot 504 V6 coupé), accident EP16; Jean-Pierre Nicolas/Jean Todt (Peugeot 504 V6 coupé), engine EP24; Jean-Claude Lefebvre/Jacques Jaubert (Peugeot 504), accident EP21.

Djibi classification test (3km—2 laps)

1. Makinen, 3m 17.2s; 2. Nicolas, 3m 18.5s; 3. Mikkola, 3m 22s; 4. Cowan, 3m 27.2s; 5. Assef, 3m 27.8s.

Results of 1st Etape (Abidjan/Yamoussoukro), 1,053kms.

1. Mikkola, 34m; 2. Nicolas, 44m; 3. Cowan, 46m; 4. Assef, 1hr 03m; 5. Lefebvre, 1hr 13m.

Results of 2nd Etape (1,844kms)

1. Cowan, 1hr 04m; 2. Lefebvre, 1hr 08m; 3. Joginder, 1hr 13m; 4. Guichet, 1hr 54m; 5. Assef, 1hr 55m.

Results of 3rd Etape (1,550kms)

1. Cowan, 1hr 09m; 2. Joginder, 1hr 41m; 3=Guichet and Mitri, 2hrs 25m; 5. Deladriere, 3hrs 21m.

Swedish opener

All the top Swedish drivers will be out this weekend on the first round of the Swedish Rally Championship, the Polar Bergslag Rally which starts from Ludeika tomorrow (Friday) night.

Although Saab have still not decided whether they will be rallying their Turbo this year (they will be making the

(known in Sweden as the Standard A class) 99.

Other entries for the event are for Leif Asterhag (Toyota), Anders Kullang (Opel), Per-Inge Walfredsson (Volvo) and Ingvar Carlsson (BMW 320). Carlsson, an ex-Formula 3 driver, is the current Swedish Rally Champion,



Eklund—Group 1 99EMS.



Blomqvist—16 valve 99EMS.

decision by January 20, when entries close for the Swedish Rally), they will be entering both Stig Blomqvist and Per Eklund this weekend and on all the rounds of the championship. Stig will be out again in the 16-valve 99EMS, as this is still allowed in national rallies, and Per will be in a Group 1-plus

and his car will be a special 16-valve model.

The rally is reckoned to be second only to the Swedish, and includes about 400kms of stages. The stages are long and impressive, the long night event including only 16, the longest of which is 75kms.

Goodyear bonus schemes

Goodyear will be offering a very extensive tyre bonus scheme in 1978 for competitors in several of the British rally championships.

Apart from the scheme announced recently for the Castrol/AUTOSPORT series they are offering the following: Esso/BTRDA Championship—cash awards for the highest placed Goodyear runners, £100 to highest placed Goodyear user in the championship overall and £50 for cars up to 1300cc, 1301cc to 1600cc and over 1601cc; Scottish Rally Championship—15, 10 and 5 Rally Spe-

cial tyres for the three highest placed Goodyear users in the championship overall and also in the Scottish Challengers Championship; Castrol/AUTOSPORT Championship—15, 10 and 5 Rally Special tyres for the highest placed Goodyear user overall in the championship and in the Group 1 class.

To qualify, drivers must use Goodyear tyres all season and fill in a registration form available from Harry Gee, Goodyear Tyre and Rubber Company, Bushbury, Wolverhampton.

David strikes gold



David Sutton's association and successes both here and abroad with Finnish rally drivers is very well known, and for his services to these drivers he has been awarded the first ever Gold Medal to be presented by the Finnish Sports Cars Drivers' Association. The medal, pictured above, was presented to him at the RAC presentations by Timo Makinen. The importance of this award can be measured by knowing a little more about the association. The association has 100 clubs belonging to it, and about 1600 individual members, and these are responsible for the organisation of about 80 per cent of the motor sporting activities in Finland. Although all the top drivers belong to the association and some of them have been awarded Silver and Bronze Medals, none of them has ever received one of these much coveted Gold awards.

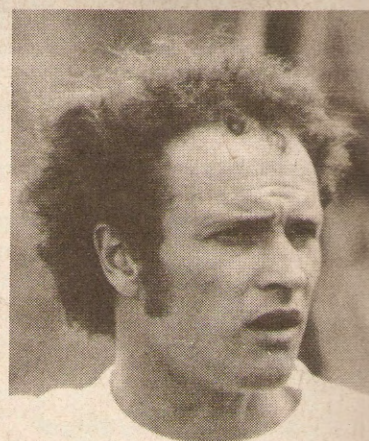
Porsche Safari duo

Vic Preston Junior will join Björn Waldegård in Porsche's two-car team of Martini-sponsored 911SC cars for their assault on the 1978 Safari Rally.

Porsche really have a very strong team for the event, as Vic (right) and his father must surely know this event better than anyone else, and the German team will be able to take advantage of their local knowledge in the same way Ford have in the past.

The cars themselves will be producing 250bhp and have a maximum speed of 220kmh. Assistance for the team will come from Dunlop and Bilstein.

Commenting on the project, Manfred Jankte, Porsche's Competitions Director, said: "We are taking a step sideways in our competitions programme. We have won virtually everything, even in rallying; but a Safari win eludes us."



Daylight in Sweden

There will be one major change for the 1978 Swedish Rally (February 10 to 12), and that is that most of the stages will be run in daylight. This will no doubt please both drivers and photographers on the event.

The rally, which is the second round of the world championship, starts from Karlstad on Friday the 10th at 1pm for the first of three sections. This first section finishes back in Karlstad at 1am on the Saturday, with the second part starting at 9am that day and finishing at midnight. The last section, which is

really just a short sprint, starts at 8am on the Sunday and finishes just after noon.

Swedes have always won their home international, but it seems likely that with entries from Fiat, Ford and Vauxhall the event could very well be won by a foreigner this year. The rally covers about 1520kms, a total of 640 of these being on special stages. Any competitors still wanting information should contact the International Swedish Rally, OK Motor Hotel, Högsgatan 3, S-654 68 Karlstad, Sweden.

Briefly . . .

● For their Tour of Cumbria Rally on April 1, the Cumbria Motor Sport Group have obtained sponsorship from Pirelli Ltd, Carlisle. The 200-mile rally will feature 75 miles of stages in the Lake District and Kielder forests. Regulations are available from Jim Stairs, 36 Hurley Road, Little Corby, Carlisle (tel: 0228 60826) on receipt of a SAE. They can take up to 120 entries, and the fee up to March 12 is £40, and after that date £45.

● Will Rutherford's regular co-driver Hugo Kennedy, who has four years of co-driving experience behind him, is looking for a ride on the rounds of the Open series in 1978. Although Hugo and Willie will be out on all the Castrol/AUTOSPORT rounds, Hugo is also keen to do the internationals. Anyone interested can contact him on Humshaugh 451.

● There are very few international rallies on which Martin Holmes is missing as a co-driver, and the 1978 Swedish Rally will be no exception, as Martin will be joining the Skoda team for a one-off drive with John Haugland.

● A film show and Tyre-Talk-In is being held by the Jim Fullwood Tyre Centre at the Radbrook Hall Hotel in Shrewsbury on Thursday, January 12. Admission is free, the evening starts at 8pm, and the 'star' of the entertainment will be Dunlop's John Horton.

● The DTV/Castrol Roadshow is visiting the Midlands during January, and the venues will be Bristol Street Motors, Stoke-on-Trent, on the 9th; Carlick Burrell and Edwards, St Helens, on the 10th; Pickford Deighton, Sheffield, on the 11th; and Batchelor Bowles, Leicester, on the 12th. Each evening starts at 8pm, and admission is free.

● Regulations for the Raylor Rally '78, a round of the Castrol/AUTOSPORT Championship, on April 8 will be available from February 1, and interested competitors should send a 9in x 4in SAE to Tony Raylor, Aspen House, Stockton-on-Forest, York. The event, which will have 85 competitive miles in a 230-mile route, will be based at the Post House Hotel at Stockton-on-Tees, and scrutineering will take place the day before the rally at Raylor's Stockton branch at Portrack Lane.

● A new sponsor to rallying has been attracted by the Severn Valley Rally, the first round of the 1978 Pirelli/Cars and Car Conversions Championship on February 12. Alcan Transport Services will back the event which will be held over 60 miles of Forestry Commission roads in the Llandrindod Wells area. Any enquiries should be directed to either J. Thorp (tel: Sedgely 4133) or R. S. Whittington (tel: Banbury 53591/2).

● Weber Carburettor Concessionaires have announced bonus schemes for the 1978 Castrol/AUTOSPORT and Pirelli/CCC rally championships. For both championships, at the end of the season the highest-placed registered driver will receive a cheque for £100 and a parts voucher for £100, and the second driver will receive the same to the value of £50.

● The new secretary of the Border Ecosse Car Club is John Struaghan of Flodden View, Branxton, Cornhill-on-Tweed, Northumberland (tel: Coldstream 2146), and the competition secretary is Dave Scott-Aiton, Legerwood, Earlstoun, Berwickshire (tel: Earlstoun 677). The club is holding its winter evenings, to which prospective members are invited, on the second Thursday of each month at the Ednam House, Hotel, Kelso, starting at 7.30pm.



Frank Pierson drove rapidly and smoothly to win by over six minutes.



Sparrow—back in a Mini.

Sparrow's Mini drive

A most intriguing press release came to AUTOSPORT's offices during the Christmas holidays from the organisers of the Holfeld Pump Rally '78, which is being held in the Wicklow area on January 14. It informed us of a very interesting entry for their rally which is for Will Sparrow in a Mini.

Will, who is no stranger to rallying in Minis, will be driving ORX 777 F an ex-works car formerly rallied by Paddy Hopkirk, Tony Fall, Rauno Aaltonen, Timo Makinen and Alec Poole. The car has a 1293cc engine, dates back to 1968 and for this rally Will will have Max McEvoy as co-driver.

Davies joins DTV

Just before Christmas, Dealer Team Vauxhall announced the appointment of Paul Davies (formerly editor of *Cars & Car Conversions*) as their Press and Public Relations Officer. Paul is based at their headquarters at Shepreth and will be looking after the team's general publicity and press relations as well as liaising with motor clubs, dealers and specialist organisations. He will also assist in the promotion of Sportparts and other DTV and Blydenstein products.

Briefly . . .

● As well as being a round of the Esso/BTRDA Championship, the Knutsford MC's Plains Rally will be backed by series-sponsor Esso in 1978. The event, on April 8, will start and finish in Newton, Powys and will have about 50 stage miles in its 190 mile route. Regulations will be available from Alan Leigh, 422 London Road, Davenham, Northwich, Cheshire (tel: Northwich 6299), towards the end of January.

● In recognition of their rally achievements last year Russell Brookes and John Brown are guests tonight (Thursday) at a civic reception being given by Wychavon Council in Pershore.

● From January 1, regulations were available for the West Cork Rally (March 18 and 19) from Mrs Catherine O'Brien, The Shambles, Annmount, Glountaune, Co Cork, tel: 021 821026. The rally is a round of the ShellSport/RIAC National Stages Championship and will include about 200 tarmac stage miles in its 300 mile route. The organisers, the Cork Motor Club, are hoping to arrange a centralised service area for the Sunday run and there will be no *parc ferme* restrictions on the Saturday night, so allowing plenty of servicing for the second day.

Frank has time in hand

It was definitely a happy New Year for Frank Pierson. Along with Ed Morgan, he took his Escort RS1800 out on the Virgo Galaxy Eppynt Rally on Monday, and won by over 6mins from Rob James/Ken Rees in their 1600 Avenger.

Pierson took a commanding lead of the event, being fastest on 11 of the 19 stages, but he did have one worrying moment on stage 10, when the battery lead shorted and he lost about 2½mins as a result.

It seems that this stage, on Eppynt, was where most people had their problems. Russell Brookes/John Horton, who were giving a 1300 Escort (built to the same spec as that to be used in the Esso/BTRDA championship) an exploratory run, clipped a rock on the verge, and ended up with two nearside tyres punctured. They then had to drive seven miles with two flats, and to borrow a tyre from a spectator to make the necessary repairs. Also here, Bob Fow-

den's Mini had its problems when a halfshaft broke. Up to then, Fowden had been leading Brookes in the 1300 class and had a good overall position. He lost this lead and finally retired at the end of Halfway Forest.

The rally had taken over the old date for the Tour of Eppynt and was based at the Abernant Lake Hotel in Llan-wyrtyd Wells. The 155-mile route included 135 miles over the Eppynt Ranges, and in Halfway Forest and some forest in Eppynt. All the 90 competitors enthused over the excellent competitive mileage, which included two sections never used before competitively. These were a 2-mile section between Fourways Bridge and Piccadilly, and some forest on the ranges.

Also out on the event was a Mazda Hatchback in the hands of Bryan Thomas, which came third in the 1300 class, and a 1300 Chevette for B. Wiggins which came second in the class. The only really unfortunate accident reported was to C. Spencer, whose Dolomite Sprint went off the road on Eppynt and ended up looking very secondhand indeed. As well as Pierson, another competitor showing a good turn of speed was Chris McAulisse in his ex-Tony Fowkes 1900cc Escort, but unfortunately, although he set some fastest stage times, he did not finish the event.

Two very happy men after the rally were Russell Brookes and Ford's John Griffiths, as their tests with the 1300 Escort were a complete success. "We seem to have got the basic spec of this car right straight off," said an enthusiastic Russell. The car he was using was a bog standard one taken off the 'used car lot' at Boreham. The engine had not been blue-printed and the body and all the components were standard. However, it ran faultlessly and Russell brought it home in tenth place. They were also trying different tyres for the series, and a choice between the Clubmans and the SP44s is expected from Ford this week.

- 1, Frank Pierson/Ed Morgan (Ford Escort RS1800), 2146secs penalties;
 - 2, Rob James/Ken Rees (Chrysler Avenger 1600), 2538;
 - 3, Richard Livingstone/Alan Skeele (Escort RS1700), 2605;
 - 4, Geoff Davies/Eric Cowell (Escort RS1800), 2677;
 - 5, Howard Davies/Phil Jones (Escort RS2000), 2823;
 - 6, David Davies/Tom Davies (Escort RS1700), 2903.
- Class winners:** J. Weatherall (Imp), 3083; R. Brookes (Ford Escort 1300), 3235; R. James (Chrysler Avenger 1600), 2538; R. Livingstone (Escort RS1700), 2605.



It was an exploratory outing for both the 1300 Escort, pictured above being serviced, and a Mazda Hatchback, below, being driven over Eppynt by Bryan Thomas.



Engine design

JOHN BOLSTER submits a progress report on piston engine development.

"The piston engine is in its infancy," remarked Sir Alec Issigonis a few years ago. At that time, Graham Hill and Jackie Stewart had just put up an impressive demonstration of speed and reliability at Le Mans, with the turbine-powered Rover-BRM. Dr Wankel's engine was also in the honeymoon stage, before the Ro80 caused utter disillusionment, and the end of the piston engine appeared to be in sight.

Yet Sir Alec had proved to be right, and the piston engine is getting better all the time, while its rivals, perhaps temporarily, have wilted. Compare the performance figures of the cars of today with those of several years ago and you will see what I mean. Furthermore, the power units we are now using are less complicated than many of their predecessors and if Rip van Winkle awoke from his snooze, he would call them old-fashioned. What is the explanation for this curious anomaly?

Much of the undoubted progress is due to C.A.D. The back-room boys of the engineering world used to achieve their results by 1% of brilliant intuition and 99% of ceaseless experimental trial and error. If you examine the lives of the truly great engineering pioneers, you will find that a surprising number of them wrecked their health and even their marriages by working without rest, and went, worn-out, to their early graves. Computer Assisted Design means that the brilliant young men of today need not treat their vocation as a religion. A research programme that formerly took a year may now be disposed of in a week or so, after an examination which can be more thorough than was possible before.

All this is just as well, for the cost of producing a new engine is now so immense that no manufacturer can afford to launch a fresh model that proves to have hidden faults in the hands of the public. The designer can no longer shrug his shoulders and go back to the drawing board, for it's got to work first time.

The opportunities presented by these modern

techniques have already allowed advanced mathematical treatments of terrifying complexity to be evolved, which give practical results that could not otherwise be achieved. I exclude those curious cases where men have produced solutions, apparently by some sort of second sight, without really understanding what they have done. Examples of this concern exhaust systems that were made years ago, when nothing was known about compressive and rarefaction waves, yet the dimensions accord with modern theory. Nevertheless, in building a modern Formula 1 exhaust system, genius is not enough, and some computer-designed manifolds are likely to astonish us in the near future.

Just as interesting are the many examples of old ideas and inventions, long ago discarded, which have now been re-invented with the aid of the computer. At the very dawn of motoring there was a larger-than-life character called 'Airship' Pennington, who claimed great things for an ignition system that gave a "long, mingling spark." This became one of the very first motoring jokes, for everyone knew that a spark of infinitely short duration was sufficient and, as for its intensity, as long as it could jump the gap, that was enough.

It is now accepted that Pennington was right, for a more potent spark, lasting longer, can get more power out of the same charge, or permit a weaker mixture to be used. Similarly, Sir Oliver Lodge invented a capacitor-discharge ignition system, way back in the Edwardian era, and it worked, too. For some unknown reason, the Lodge ignition system fell into disuse and was allowed to die, but please remember Sir Oliver when you read eulogistic reports of the latest thing in capacitor-discharge ignition. Talking of ignition, for many years the most popular method was the high-tension magneto, which was found on the majority of cars in the 1920s. It is rumoured that the good old 'mag' is about to make its comeback in Formula 1, which will be far simpler than the present sparking arrangements. However, if that means its revival on high-performance road cars, there may be

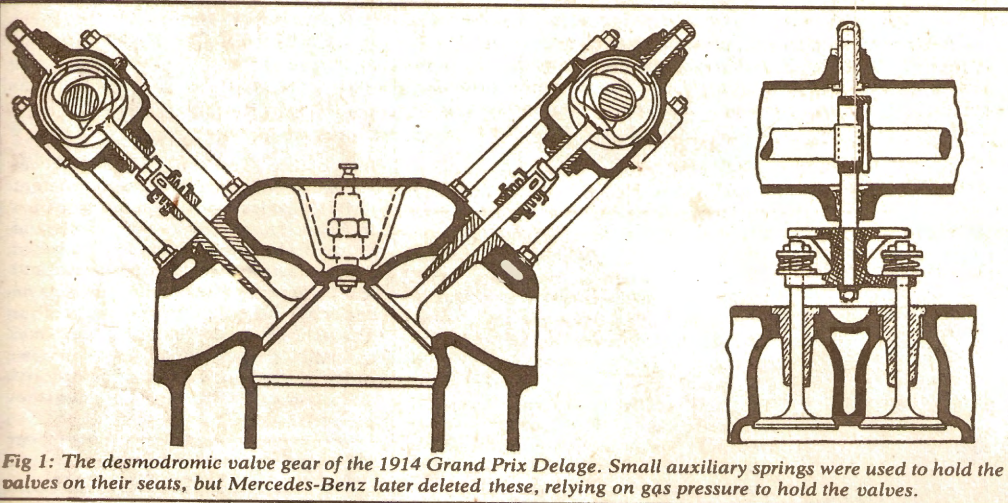
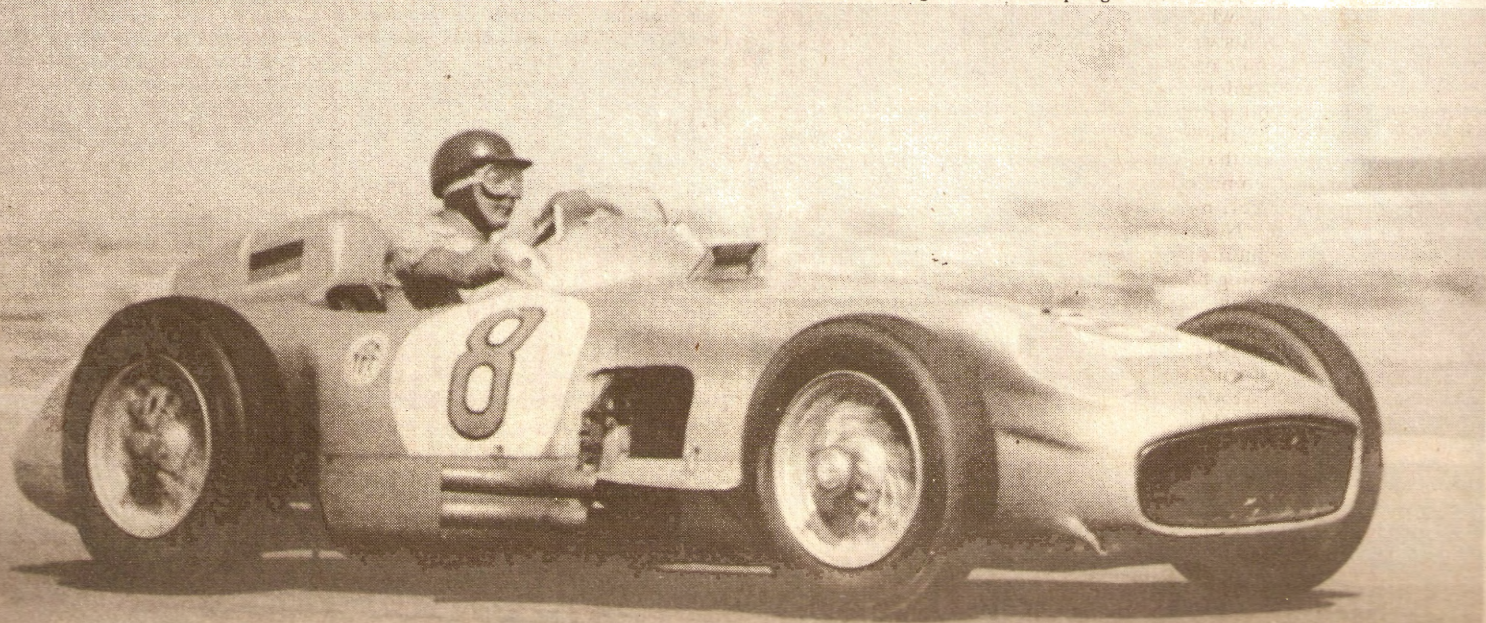


Fig 1: The desmodromic valve gear of the 1914 Grand Prix Delage. Small auxiliary springs were used to hold the valves on their seats, but Mercedes-Benz later deleted these, relying on gas pressure to hold the valves.

The engine of the Mercedes W196 (Hans Hermann driving here) was fitted with positively-closed valves, doing without valvesprings.



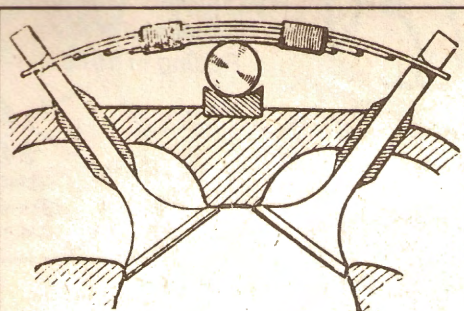


Fig 2: Parry Thomas used leaf springs to close the valves, both for the straight eight Leyland and for his racing engines.

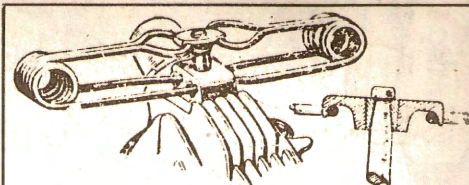


Fig 3: The hairpin valve spring was originally used to improve air circulation for valve cooling on motorcycle engines. It had a brief vogue on racing cars in the 1950s.

no advantage and the good old 45deg seat gives the best all-round results. The same comments apply to other parts of the engine, notably the piston rings. A few years ago, it was the piston ring which was limiting engine speeds and power outputs, but now it gives no more trouble than our valued friend, the valve spring.

The hairpin spring was adopted for motorcycles, largely because it permitted the draught to play directly on the valve stems of an air-cooled engine. Quite why it was copied with such enthusiasm for multi-cylinder water-cooled engines is now difficult to fathom, for it's an awkward brute to house. It was generally used in conjunction with pivoted, finger-type cam followers, which have a geometry that is less than ideal. Really, the piston-type (or inverted bucket) tappet is so much more attractive from every point of view, and a coil spring fits inside it so nicely that the two seem made for each other.

While the twin-cam engine was a 100 per cent success from the outset, it was considered unsuitable for production cars because it was too noisy. The camshafts were driven either by a dirty great train of mangle gears, or by a pair of shafts with bevel or skew gears at both ends, or by a vertical shaft plus a few pinions. In any case, backlash and noise were unavoidable.

Of course, chain drive could have been employed, but the manufacturers fought shy of this method, because there was strong prejudice against it. It was a tradition that expensive cars had gears, and only the cheaper ones had timing chains; eventually, people noticed that the cheap cars remained silent while the rich had to put up with an increasing clatter from their timing pinions. (The prejudice actually came from the exposed chain drive to the rear wheels of early cars, totally different from an enclosed chain running in oil.)

There had admittedly been problems with chains stretching and eventually jumping a tooth, but the back-room boys soon solved that

one. As prejudice evaporated, timing chains were accepted, and nowadays many motorists don't know what drives their camshafts or even how many they have got. As a result, cars with overhead camshafts now have the reputation of being quieter than those with pushrods and rockers, which have more places to wear and develop unwanted clearances.

The timing chain may well last as long as the car if the installation is well designed, but when completely new engines are laid down, the toothed belt is apt to be used for camshafts and other ancillary drives. If the engine is designed *ab initio* to take full advantage of the belt's many virtues, it is likely to be even quieter than one incorporating a timing chain and it will certainly be considerably cheaper. I have driven a car with a toothed belt operating its camshaft for several years, and I can say that it is as quiet now as when I first took it over (see Fig 4).

Modern production cars are mostly of conservative design and though they easily outperform their predecessors of a few years ago, this is because innumerable details of their engines have benefited from research that never stops. Perhaps the only really new feature is the toothed belt, and I hail it as the greatest improvement of the decade. With its aid, it is now possible to build small cars that are, as quiet as luxury limousines, and they usually handle a lot better; it must be hell to be rich!

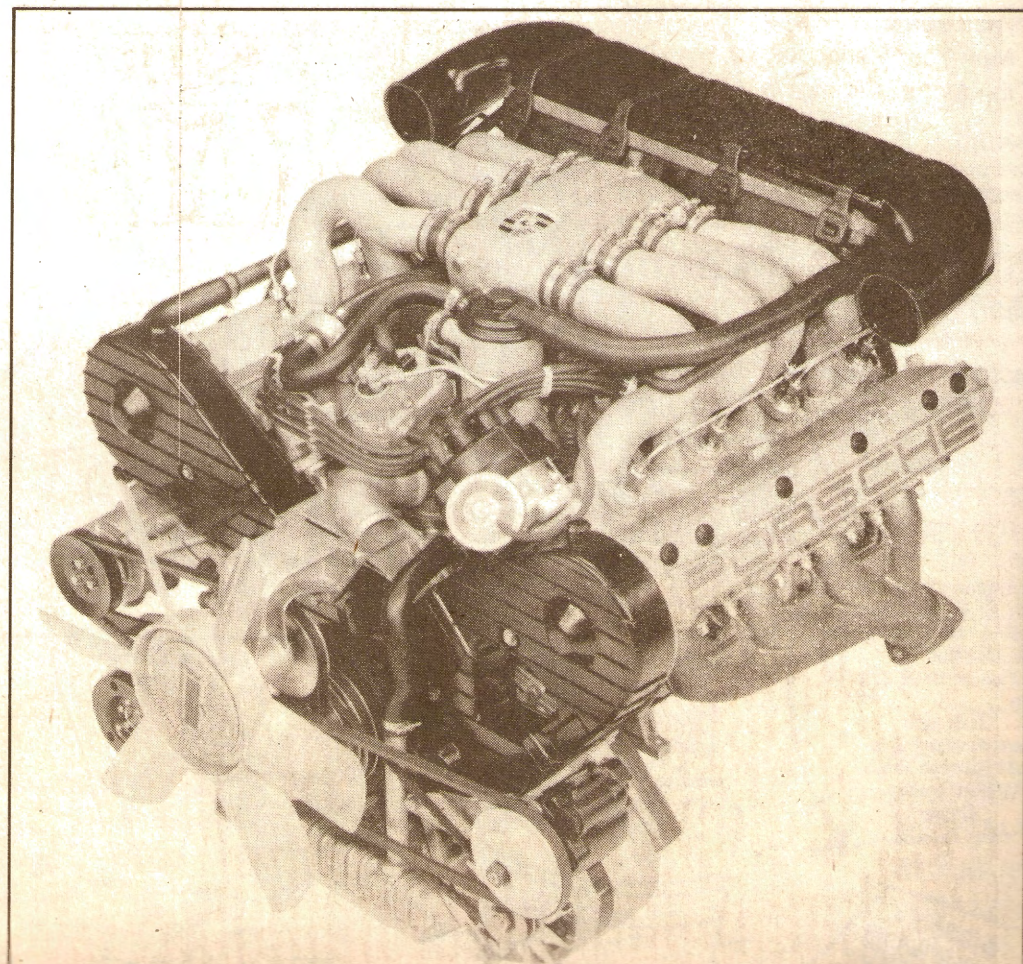


Fig 4: The toothed belt for camshaft drives has revolutionised engine design, as here exemplified by the 4-litre

some pretty displays on the screens of television receivers. Judging by most of the programmes, this will probably be an improvement, however.

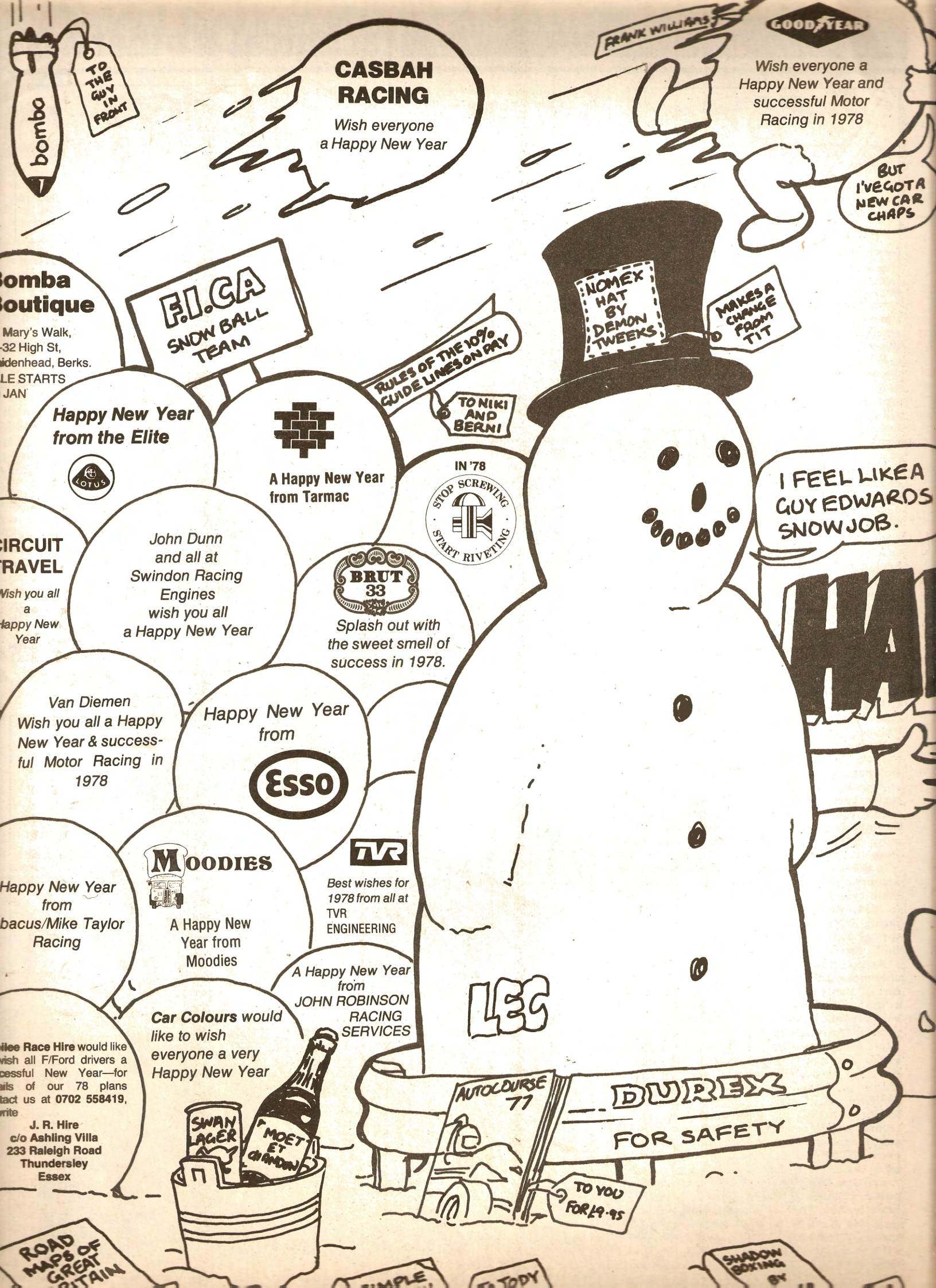
When the Peugeot racing department produced the earliest twin overhead-camshaft engine with four valves per cylinder, it won its first grand prix. Whether Boillot, Goux, or Zucarelli had the original idea is lost in the mists of time, though we know that it took practical shape on the drawing board of Henry. What matters is that their original design, in all its essentials, is still used for every Formula 1 engine and for many of the best high-performance cars in other spheres, though it is 65 years old. Curiously enough, the twin-cam Peugeots, though immensely successful, were criticised for retaining the conventional valve spring, which was considered to be the Achilles' heel of racing engines. The Grand Prix Delage, although not a match for the Peugeot, was considered to be more modern because it had desmodromic valve operation, with an extra cam in place of a spring to perform the closing function (see Fig 1).

Since then, numerous attempts have been made to oust the coil spring. Various desmodromic racing engines have been built and Bignan actually marketed one briefly for their road-going sports cars in the 1920s. Alternative types of springs were also tried and Parry Thomas achieved surprising power outputs, using leaf springs instead of coils, while others, notably Panhard, closed their valves with torsion bars (see Fig 2).

Around 1950, when the first real post-war racing cars were beginning to appear, it was found that several designers had followed motorcycle practice and adopted hairpin-type valve springs (see Fig 3). Power units ranging from the triumphant Ferrari to the sorrowful V16 BRM were so equipped, although space to accommodate them under the valve covers of multi-cylinder engines was at a premium. Then, in 1954, Mercedes-Benz re-entered Grand Prix racing with the W196, which had no valve springs at all and closed its valves by additional cams, on the desmodromic principle.

At that time, most students of design probably thought that the coil spring was for veteran cars on the Brighton run, the hairpin spring was a useful stop-gap, but that positively-closed valves would soon become essential in high-performance engines. Yet, more than 20 years later, what do we find? Not a single engine in Formula 1 boasts desmodromic valve operation, and the hairpin spring has died the death. Or, to put it another way, Delage found the complication of positively-closed valves to be justified at 3500rpm in 1914, Mercedes-Benz regarded it an essential for 8500 rpm in 1954, yet the racing engines of today run at 11,000 or even 12,000rpm (or should I write RPM?), using the formerly derided coil spring.

Perhaps those figures are a measure of the piston engine's progress. Countless hours of brain-bashing and an infinity of mathematical formulae have gone into the design of the springs of today and their associated parts in the valve train, yet they look disappointingly like those of the 1912 Peugeot. The latest racing valves, too, look terribly 'touring', for research



FRANK WILLIAMS

GOODYEAR

Wish everyone a
Happy New Year and
successful Motor
Racing in 1978

BUT
I'VE GOT A
NEW CAR
CHAPS

CASBAH RACING

Wish everyone
a Happy New Year

bombo
TO THE
GUY IN
FRONT

bomba boutique

Mary's Walk,
32 High St,
Haddenhead, Berks.
RACE STARTS
JAN

FLICA
SNOW BALL
TEAM

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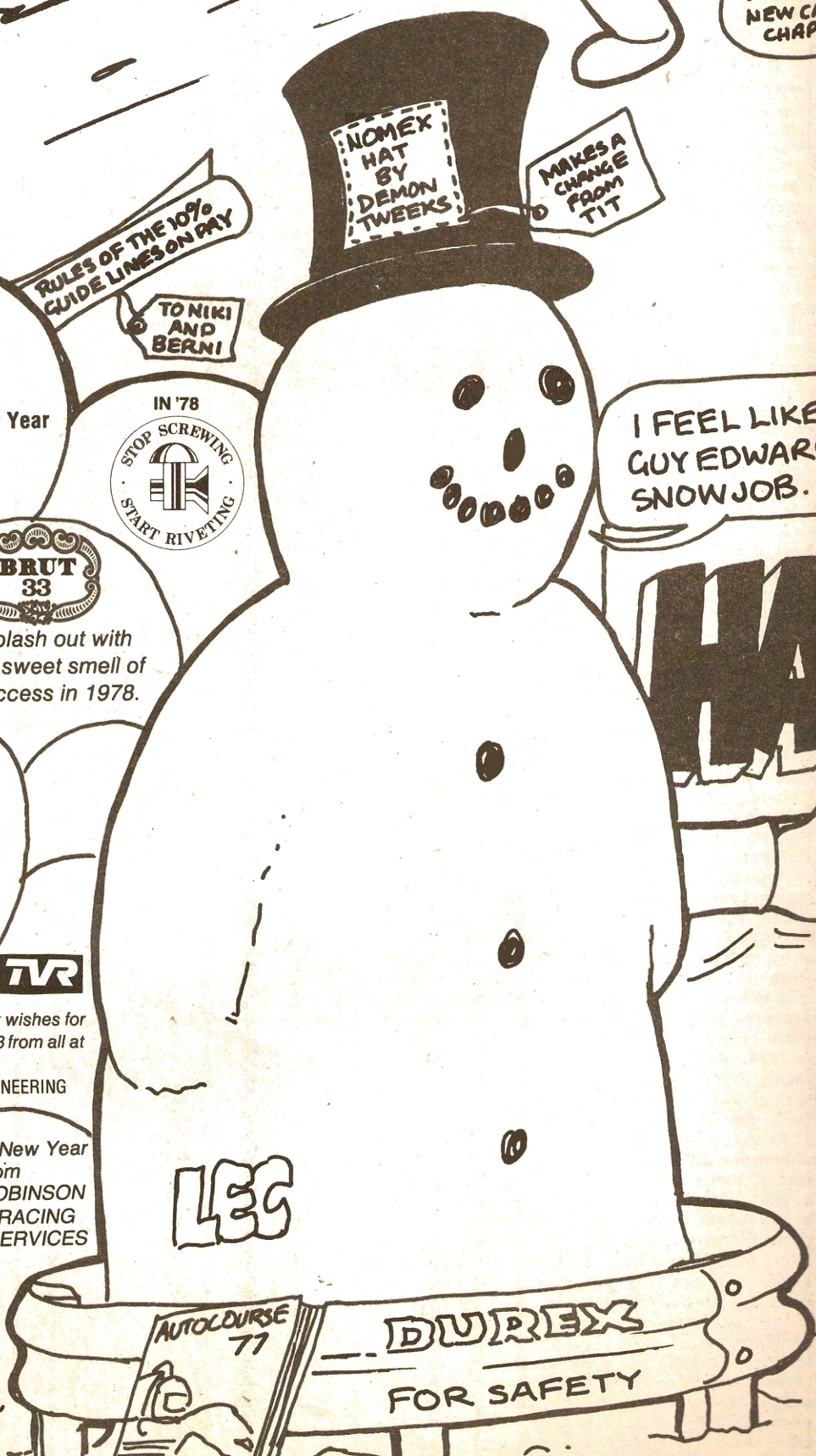
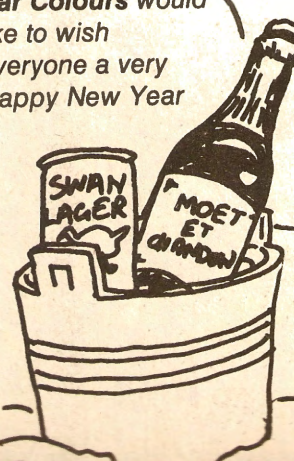
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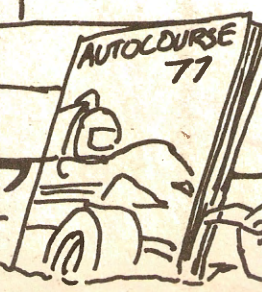
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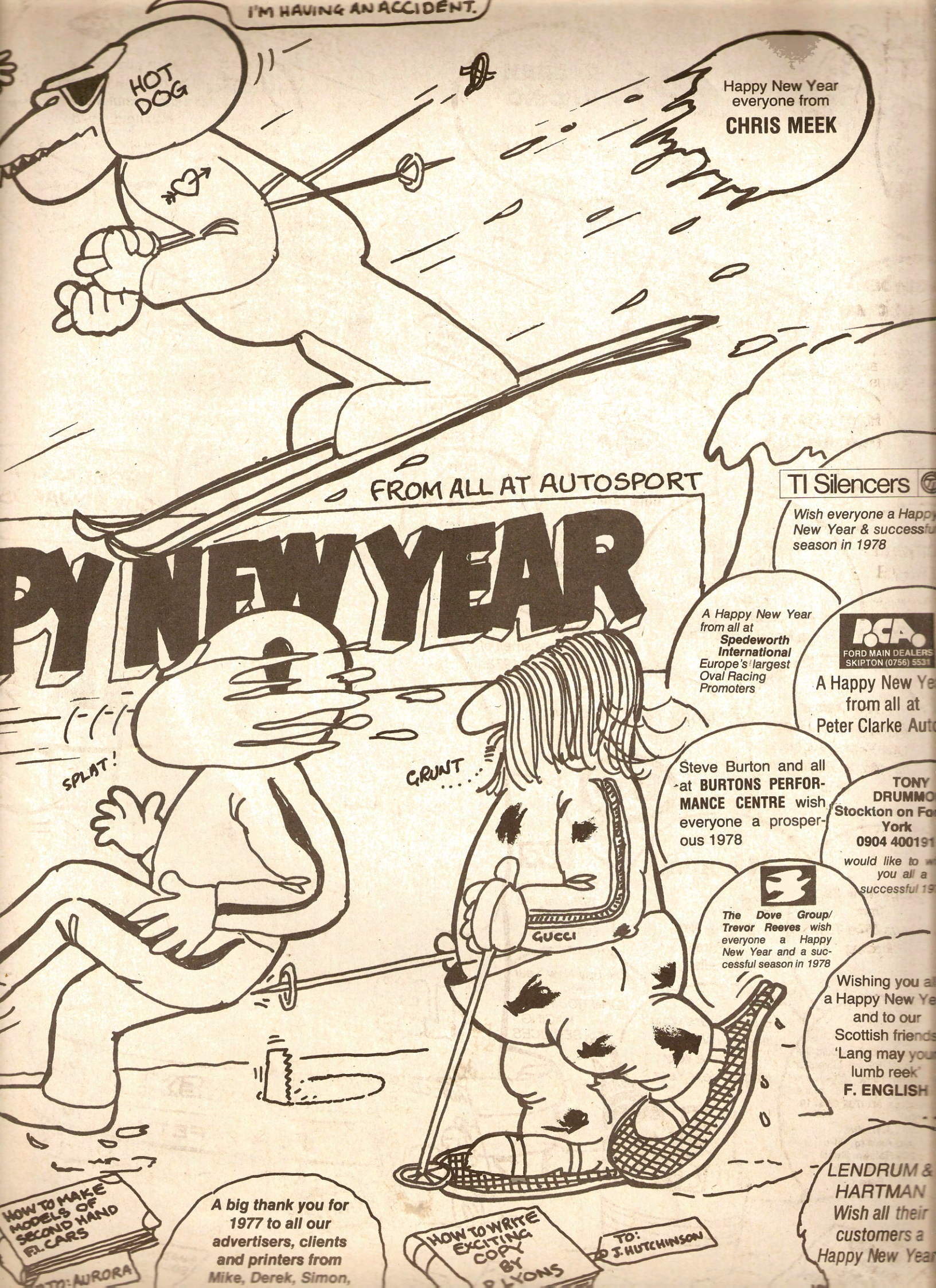
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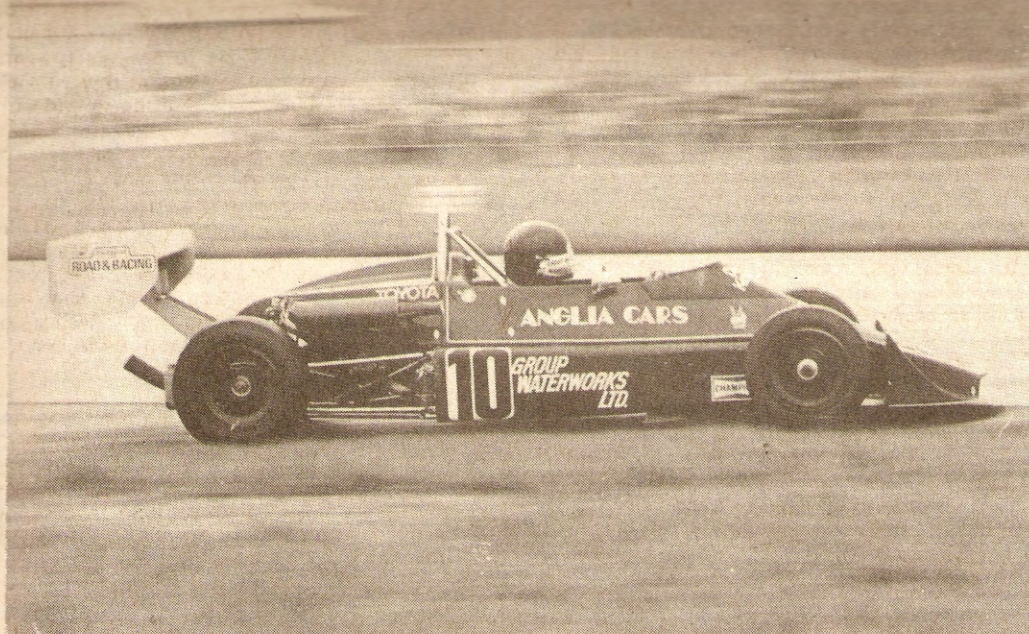
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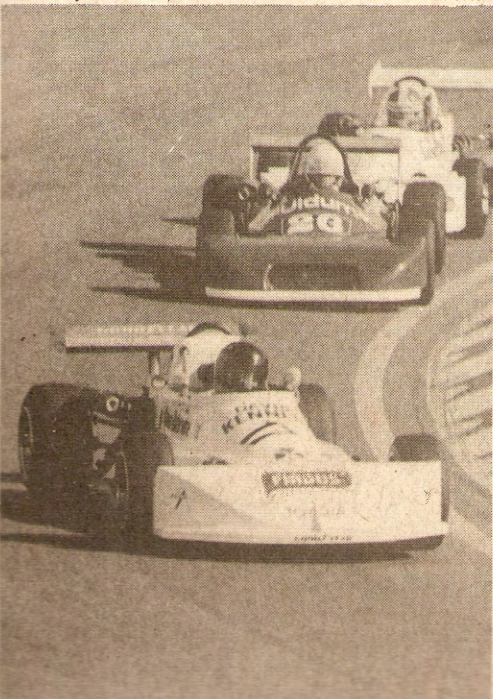
David Kennedy at speed in Jo Marquart's Argo JM1 at Kassel Calden.

Pros and cons of Europe

How does a European F3 season compare with competing in a British series? BOB CONSTANDUROS discussed the reasons behind David Kennedy's move into Europe in 1977.

"I finished the 1976 season with a British championship under my belt—the RAC Formula Ford series—so there was no point in continuing for a further year trying to win another British championship. My compatriots and sponsors wanted a European championship from me next, and when they've got a European championship, they'll want the World Championship. That's why I set my sights on the European F3 championship."

Kennedy's March leads Nielsen's Ralt at Zandvoort.



That was David Kennedy speaking. For some years, Dubliner Kennedy and near-neighbour Derek Daly have trod the same path in motor racing . . . and outside, too, when you remember their trip to Australia to raise enough money to go motor racing. In 1976, they both moved over to England to race in Formula Ford. Kennedy won the RAC Championship and Daly the Formula Ford Festival, the latter after a season of ups and downs.

Both were determined to go Formula 3 in 1977. Daly was helped along the way by fairy godfather Derek McMahon, Kennedy had the help of John Hynes of Group Waterworks, and Findus. Daly elected to contest the British championships, Vandervell and BP, while Kennedy struck out for unknown shores and the FIA European series. If Daly had had the worse Formula Ford season, the same could not be said of his F3 year in 1977. He had a fine run of wins at the end of the season, made an excellent impression in his F2 debut and came away BP F3 champion. His move to Formula 2 is now just a matter of course.

Kennedy's season has been rather less publicised. He started the season in a March run by the ill-fated AFMP outfit. At first things went quite well: in the opening round of the European series at Paul Ricard, he finished in seventh place followed by another seventh at the Nürburgring. At Zandvoort, he got into the points with fourth place and fastest lap, before moving on to Zolder, which marked the start of a downhill run. Although David ended fifth, the engine was finished and it became apparent that the money in AFMP was running out. At the next event, Österreichring, the gearbox packed up and, by this stage, Sandro Angelieri, the man running the AFMP operation, had disappeared. But Kennedy soldiered on, travelling to Monaco where he recorded an excellent qualifying time according to private watches, but it was never published officially. By the time he had protested his non-qualifying time, it was too

late and he never got to race. The next European F3 event was at Imola where he qualified fifth quickest after very little testing, and finished 17th after a puncture.

As AFMP Britain had finally collapsed, Kennedy was taken under the Italian branch of the outfit run by Paolo Pavanello, with whom he went to Enna in Sicily and won for the first time. He beat AFMP Italy's driver (and eventual European champion) Piercarlo Ghinzani to a heat win, but fell foul of Piero Necchi in the final. However, he was pleased to be up with the leaders. After Enna, AFMP Italy had Kennedy's engine rebuilt, something which David thought unnecessary at the time, and he wasn't too pleased when the Nova went badly at Monza, the next event. However, his race finished when he left the track.

After the engine fracas, Kennedy wanted out but the final straw was AFMP's failure to bring his car to England for the F3 race at British Grand Prix meeting, naturally an important event. At that point he completely severed his ties with AFMP.

Although he missed the next European round at Croix-en-Ternois, he did manage to get himself fixed up with Jo Marquart's Argo concern and, with them, set off to Knutsdorp: but the battery broke away and the consequent pitstop dropped him to 18th. However, he was very impressed with the car and, after bending a valve at the Österreichring (where Daly won), he was very happy with the way subsequent testing went. The next weekend at Kassel-Calden showed that it was all worthwhile when he won his heat and led the final until the fire extinguisher went off and the clutch failed, leaving him to limp home in second place.

He had to miss the Donington European F3 round as the Argo had been loaned to Jorge Koechlin but, at the following round at Jarama, Kennedy qualified third quickest; after a bad start, he fought back from seventh on lap one to second at the flag. From Spain it was back to Italy where Kennedy survived an incident with Beppe Gabbiani, who was apparently trying to write off the whole field, and led for the last three laps until hitting a kerb on the last, 'a stupid mistake' which dropped him to second again. His final foreign race was the Italian and European championship final at Vallelunga, where the first six drivers were covered by 0.1 sec after practice. Kennedy led it despite being knocked off by Oscar Pedersoli, but then Gabbiani appeared again and ended his race. The end of the season included two races at Thruxton, where he came fifth in a BP round, and rose from 11th to fourth at the televised meeting until a tangle with Patrick Gaillard ended his race.

In the process of this heavy programme, David did 26,000 miles in his Toyota Hiace Camper which was his 'home', a distance which compares markedly with the 12,700 miles he covered the previous year while contesting 30 Formula Ford races in England, Ireland, Germany and Holland.

How does he rate his season? "I weighed up the pros and cons before I went to Europe, and since then I'm certain I did the right thing. I reckoned, having spoken to people and got some quotes, that it would cost £25,000 for a British championship season. The European season cost about another £10,000. For every minute of racing, Europe cost me £14, whereas because of the shorter races the British series would have cost £17. On the same basis, the British series costs £9.40 per mile, while the European costs £7.70.

On the sponsorship side, I could sell a very good package to sponsors by doing the European series. Out of 15 races, nine had TV coverage—extensive TV coverage—and one or two others had a recorded report shown a week or two later. I could get the video films of the races and play them back to my sponsors. Findus and Goodyear were very pleased with the Continental TV, even though it might not have given them any direct sales benefit. It was part of the overall spectrum as far as Goodyear were concerned. I believe that, if you're successful you'll gain more by going to Europe. I'm convinced of that. Towards the end of this

season, I had four good results and got really excellent coverage, more than if I had had those results in Britain. I've had quite a few Continental offers because I've gone well in Europe.

"Don't forget that there's a shortage of sponsors in Britain, and there are a lot of good drivers looking for sponsorship. But the National media don't take any notice of F3, neither does TV and there is very little in the way of coverage to offer a sponsor who is talking in terms of £25,000.

"From a personal point of view, there are several advantages. Having raced in an FIA championship in Europe, I'm now very close—just a couple of races away—from a Formula 1 licence. Those people that have raced in Britain have had only one FIA International F3 race in Britain, and now need nine more races before they get their F1 licence.

"When I'm driving in Formula 1 (sic), I'll have raced on some of the GP tracks: Zandvoort, Zolder, Paul Ricard, Nürburgring, Österreichring, Monaco. If you hope to be a successful racing driver, you're never going to be racing at Mallory Park, Snetterton, Oulton or any of these places again. I've raced on them, and raced on them successfully, and I liked them but, for future reference, it's good to have these Continental circuits under your belt.

"It has also been useful to have to go to a circuit and learn it straight away. I'd learnt the British circuits, and knew them. With the foreign ones, I was meeting them and having to be competitive immediately. You're at a track once, you have a crack at it once and realise that you're not going to see it for the rest of the year. On such a track, with a professional team, you try the springs, the roll bar settings, the wing, less wing, more wing, more toe-in, you really try everything. You learn a lot more track work, because you really have to develop your car.

"Apart from the actual racing, of course, there's the excitement of the build-up. There are usually two days of practice before a European championship F3 race when you can get the maximum out of the car, even down to ideas of running the engine richer or leaner. You're kept in constant touch with what other drivers are doing throughout the practice sessions. But this doesn't happen in Britain. You have your 20mins or 40mins practice, then you've scarcely topped up the petrol and put air in your tyres before it's time to race.

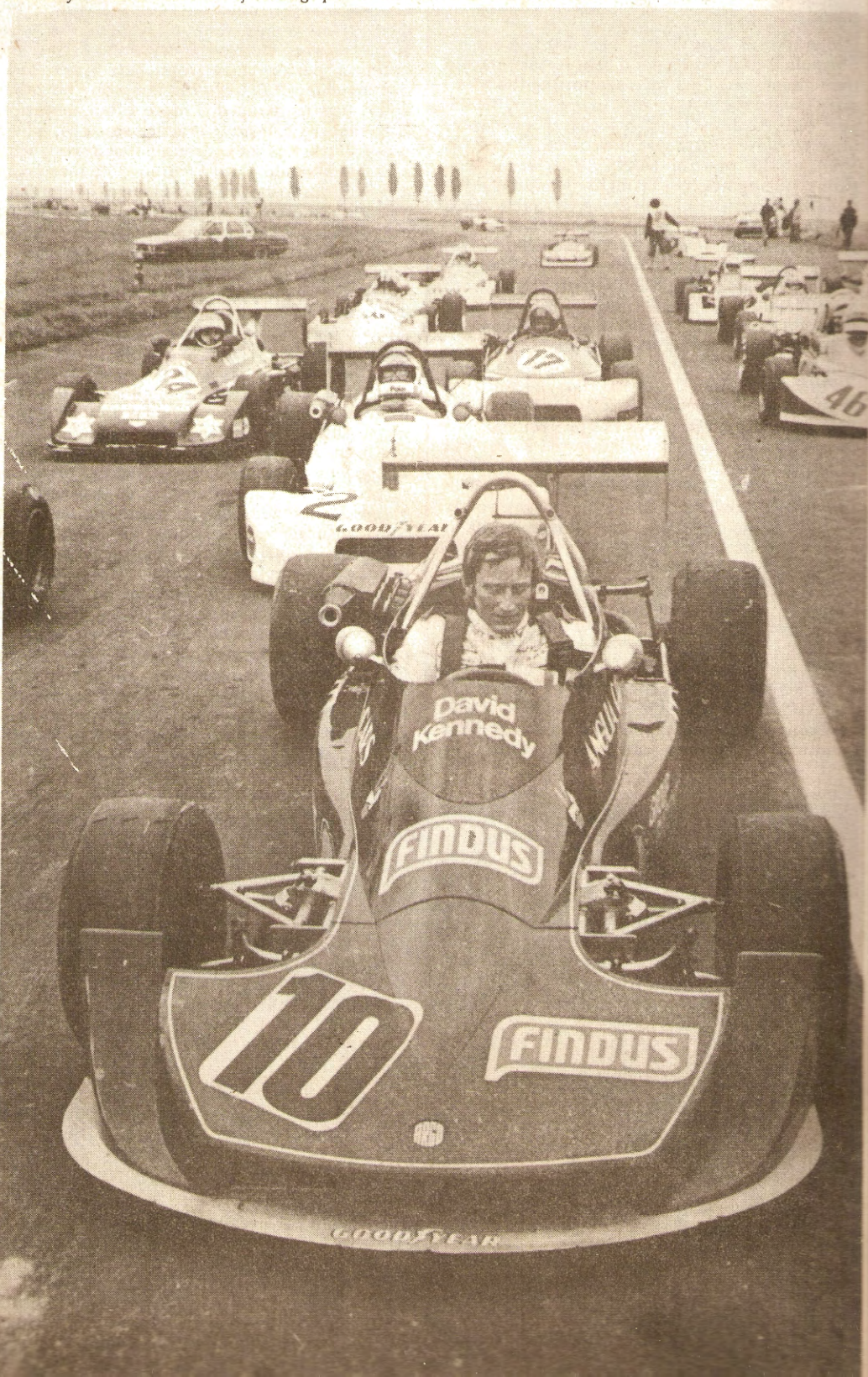
"In Britain, you have a 15-lap, 20mins race, while in Europe you have a 50mins race, therefore it spreads the emphasis differently on the race. In Britain, you have only 15 laps to get by the driver in front, so the start is of immense importance. In Europe, you've got 50mins of race driving and there is less emphasis on the start, even though that is still important.

The face beneath the black helmet—the red-headed Irishman.



"There's also the physical fitness side. More or less anybody can survive a British F3 race, whereas European races take more out of you physically. At Knutsdorp, I had 70mins total time, heat and race, of competitive driving. The track is particularly tiring, like a mini-Nürburgring. Several banked corners cause a lot of G-forces on your arms, head and neck. It showed up a lot of drivers who fell away after about 40mins of driving. They just couldn't stand it. It's a point that one might well encounter in Formula 2. There, the races last around an hour and, if you are to maintain top form throughout, you have to be both mentally and physically fit. European F3 racing is definitely international racing, a mini-F1. I think I've had a real taste, real experience of club racing in Formula Ford and international racing in Formula 3. British F3 is a step somewhere between club and international, like Formula Ford with wide tyres. It's every bit as competitive, but you're being given less to be competitive with, less time to get the best out of the car.

Kennedy relaxes at the wheel of the Argo prior to the start at Croix-en-Ternois.



"I would recommend a young driver to do the same as me if he had a successful club season behind him. If he just wants to learn racing, he should stay in Britain; then, if he's any good, go into Europe. But he should only do that if he has the finance and the set-up. Organisation is very important, the problems of getting four or five men plus two cars from Sweden to Austria, Austria to Spain, the carnets, insurance, hotels and so on. Organisation is the basis of a good team, a team that's hopefully done it before, or a team that's switched on, doing it for the first time but having done a lot of research. It's as important to be with an experienced team as to have a good car.

"The emphasis is to win, whatever you do. I'll do European F3 again rather than try for F2, because it's twice the price to move up. And I still believe that, if you have a super-successful season in F3, you should be able to get into F1".

From strength to strength

JEREMY SHAW reviews another successful season of Formula 3

One year ago, in our review of the 1976 season, we said that Formula 3 would not become fully justified as an international 'European' category until the French became wholly involved. This year we have come to the very brink of such involvement. Formula 3 has further established its reputation as a competitive and progressive formula, while there has also been an increasing smattering of French drivers and a continuing decline in Formule Renault Europe.

Didier Pironi took a step backwards from his Formula 2 Martini-Renault seat to take part in the annual classic F3 race supporting the Monaco Grand Prix in May and, in doing so, the 25-year-old Parisian took his career two steps forward by scoring a dominant victory with his French-built Martini MK21. This result can surely be regarded as a major stepping-stone towards a complete resurgence of Gallic interest in Formula 3; a resurgence which has recently been crowned by the announcement that Régie Renault are to be officially involved in challenging the dominance of Toyota with their own engine, based on that currently seen in the 30TS saloon. Tico Martini will be running a works engine in his Monaco-winning chassis and will also be building replicas of the MK21.

Formule Renault Europe has declined in importance almost as rapidly as F3 has grown. This year, the former class has projected only a couple of men likely to make a real career out of motor racing, and the better of these, Alain Prost, will drive the works F3 Martini in 1978. Formula 3, however, has brought many young drivers to the forefront, and it seems that at least eight of these should be progressing to greater things next year.

Formula Super Vee has also had a disappointing year as far as producing new talent is concerned, so that F3 is now the dominant single-seater class in most European countries. There are prestigious national titles at stake in Scandinavia, Germany and Italy as well as our own BP and Vandervell championships, while, theoretically at least, the best of these were combined in the European championship.

In practice, this did not really work out, as most drivers, especially the British-based ones, preferred to concentrate their efforts on their own domestic series rather than to be involved in the expense necessary in traipsing all over the continent to contest the FIA-sanctioned events. Not only were the travelling expenses prohibitive but so too were the running costs without, for example, the cost-minimising one-tyre restrictions placed on runners in Britain.

The continental races, however, did tend to be well organised from the racing point of view, if not promotionally. At least the contenders were given ample time for practice at each circuit so as to enable the drivers to extract the optimum performance from their hyper-sensitive machines. British runners, on the other hand, had to make do, more often than not, with meagre half-hour practice sessions, which proved little and meant simply that anyone with a problem would almost certainly be faced with a poor grid position. Conversely, though, this did tend to place a greater emphasis upon the preparation of cars, and it was most interesting to note that it was always the same people who seemed to have the problems.

The European series, in terms of results, was dominated by two men: Piercarlo Ghinzani and Anders Olofsson. But the national scenes were far more closely fought. With two rounds of our BP championship to run, no fewer than five men were in with a chance of clinching the title, while the Italian one reached a similar climax with a different quintet squabbling for honours.

All in all, 1977 was an intriguing season. There was a lot of excellent racing, plenty of surprises and a fair share of controversy, all mingled together with a quota of accidents commensurate with a competitive class of racing in which everyone is trying to show that he is future Formula 1 material. There was also that important international flavour which not only creates world-wide interest but also brings in the new blood which, in turn, arrives with ever-expanding bags of gold with which to buy into a works-backed team.

One cannot blame the manufacturers for running these 'pay-drivers' in their teams, especially with the economic climate as it is. But this practice does, inevitably, breed a certain con-

tempt among the home-grown talent, who may have shown tremendous potential in the junior formulae but then fail to make the grade simply because they cannot raise the finance. Many are the stories of drivers shining in FF1600, or the equivalent, who then have to take a sideways step in their careers rather than moving on into F3 at what is the most crucial stage of all.

What we need in this country is to find a sponsor willing to undertake the type of involvement that we are now seeing in the 'growth-countries' of our sport. Spain and Brazil are the two classic examples at the present time. Since the arrival of Emerson Fittipaldi, there has been a string of South Americans making their name in F3, and virtually all of them are supported by national enterprise. The racing authorities in Spain, too, are now realising that Britain is the place for young drivers to prove themselves; hence, this year, we have witnessed the formation and growth of the Equipo Nacional Espanol de Formula 3. This project has been run by that experienced European traveller-cum-entrant Roger Heavens for two Formula Seat graduates, with sponsorship from several leading Spanish companies. The drivers showed well on occasion, but some abysmal fortune saw their efforts dampened. The idea, however, was first class, as was the policy towards the end of the year of testing several more youngsters in the cars prior to settling upon a team for 1978. Britain could do with a similar outfit.

Formula 3 is expensive. There is no denying that. But it does command a high regard among Grand Prix team managers, and for those with a burning desire to reach the pinnacle of the sport F3 has to be the way to go.

As long as the category continues to attract the best of the world's young drivers, then it will continue to thrive. The French have at last admitted defeat in trying to establish Formule Renault Europe as the continent's premier class, and they are now embarking on a serious programme for a concerted attack on F3. If their record in F2 is anything to go by, then it should add even more stimulus to an already exciting formula with 1978 being a really vintage year.

So much for the theory. What about the drivers?

Normal procedure at this stage in our annual review is to nominate a 'Top Twelve', which always provokes comment but which really is only a kind of lottery. One feels that such a classification is even more meaningless than normal this year, in view of the fact that the national championships have tended to overshadow the European series, and the chances of judging drivers' relative merits have been too few.

British championships

Be that as it may, the top driver in everyone's eyes must surely be that effervescent Irishman Derek Daly, who has conducted his season in such impeccable style, and rounded it off with a string of five wins unparalleled since the days of Dave Walker. The career of this 24-year-old Dubliner was recently chronicled in these pages, so there is no need to delve too far into Derek's history. Nevertheless, the story of his rise to fame from an almost destitute Formula Fordster at this time last year to his present status as the hottest property outside Formula 1 has been a truly remarkable one. DD, as he has become known, suffered a disappointing season in 1976 with his FF1600 Hawke, but he suddenly shot to prominence with a tremendous performance at the Brands Hatch Formula Ford

European F3 champion Piercarlo Ghinzani leads newcomer Siegfried Stohr at Vallelunga.





Ghinzani—European champion.

Festival in which he won his heat, quarter-final and semi-final, and the final. Derek then spent the winter months desperately trying to raise some finance with which to progress in the sport and, aided by his friends, eventually found one of the most enthusiastic benefactors possible in the shape (and what a shape!) of Derek 'Big D' McMahon. This Heskethian figure, a businessman from Donegal and a long-time motor sport supporter and contestant, rose magnificently to the challenge of big-time single-seater racing.

Daly began the season cautiously with his new Chevron B38 but, by the time the F3 circus arrived at Zolder for a combined European/BP round in late April, he had finished each race in the points, this being, most sensibly, his main priority. He then went out and won his heat at Zolder superbly. A heavy rainstorm drenched the circuit 15mins or so before the start of the final and, despite a rapidly drying surface, he opted to remain on wet tyres. It was a difficult decision. He was unlucky. After leading the first six laps, 'DD' found the tyres beginning to 'chunk' and was forced to retire. But Derek Daly had arrived!

The all-important Monaco race came a month later, and Derek performed brilliantly in the first wet practice session, and was comfortably fastest. Drier conditions later on suited his car less, but he was working his way up through the pack in the race and dicing, at the same time, with arch-rival Stephen South. Several laps and place-changes later, Stephen missed a gear exiting the 'Piscine' and Derek moved



Daly—BP champion.

instantly alongside for the short, curving spurt towards La Rascasse hairpin. There then happened the first of two controversial incidents between these two men. Both cars ended against the armco, and each blamed the other.

No one else really blamed either for the incident. It was just one of those things. A couple of weeks later, however, at Silverstone, Derek indulged in one of his very few real errors of the year by spinning in front of the pack at the end of the first lap.

July was not a good month, either. A week after he was forced into a mistake at Cadwell by a backmarker came the British Grand Prix meeting, and his second unwitting 'skirmish' with Stephen South. These two were battling for the lead, clear of the rest, when Stephen, again in front, missed a gear leaving Becketts. It was the same as at Monaco, but faster. Neither driver intended giving way and, when the two cars touched, South's March cart-wheeled horrifyingly into the fields while Daly's Chevron spun crazily down the track. A dispirited Daly recovered to finish eighth while a surprised victor, Anders Olofsson, would not be drawn into apportioning blame but was of the opinion that both *could* have avoided the incident.

Derek was, by now, becoming slightly depressed at coming so close to winning without doing so. He certainly felt that he was receiving unwarranted bad press from the accidents.

Whatever, he went to Croix-en-Ternois a week later and won the European champion-



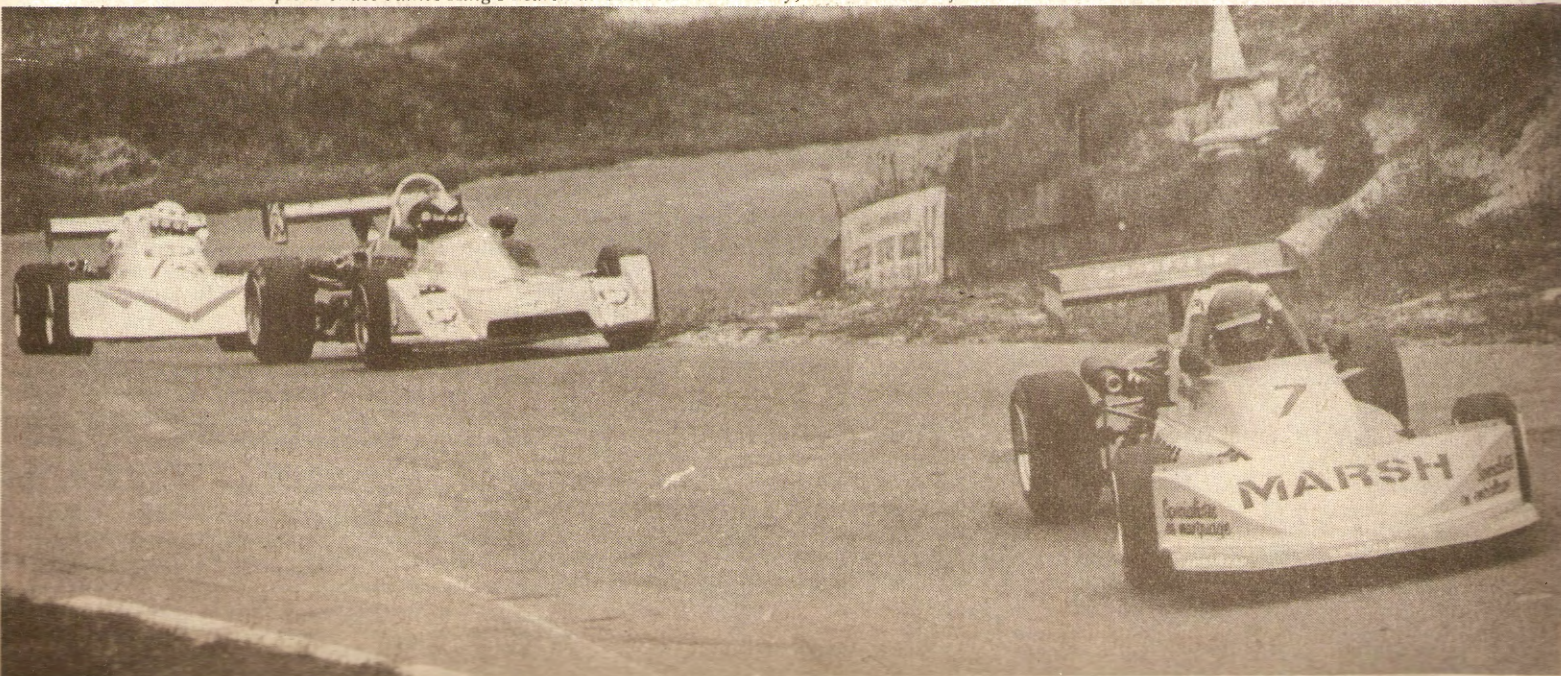
South—Vandervell champion.

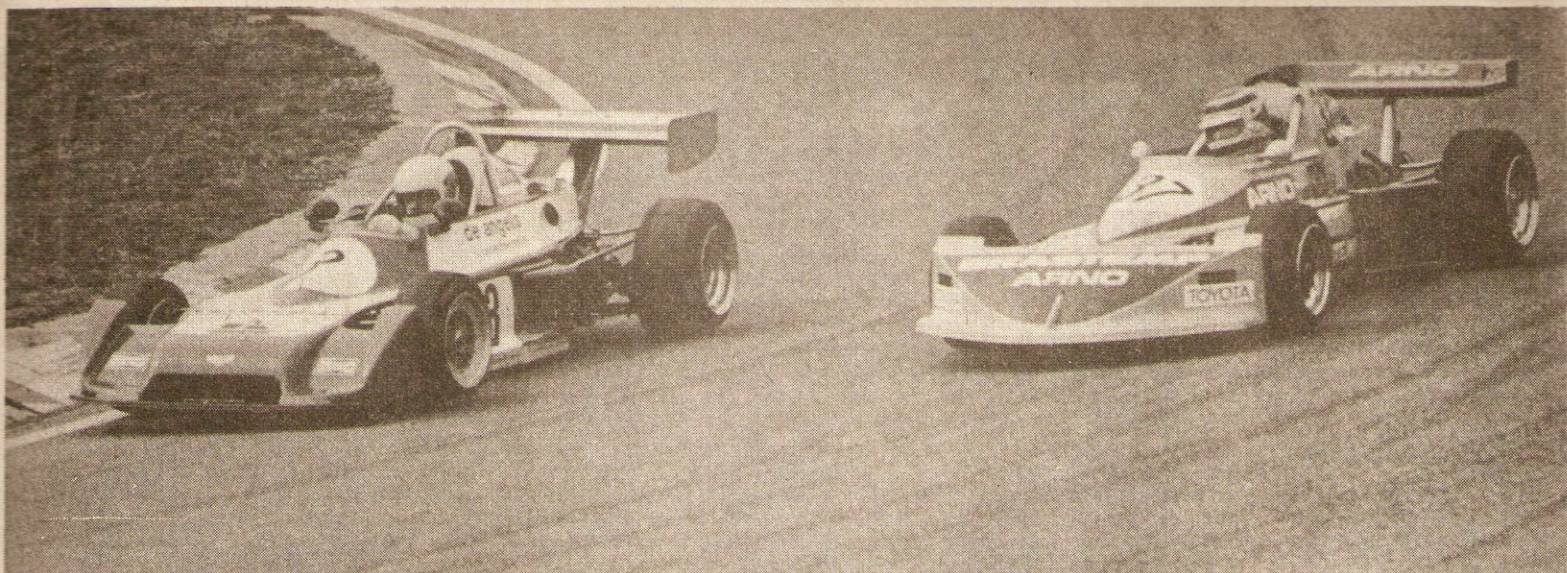
ship round there. This heralded a remarkable change in his driving. Suddenly, he *looked* like a winner. Perhaps he had been trying too hard. His style and approach became more relaxed and mature. He then finished every one of the 12 events until the end of the year, and won a total of seven of them.

The facts speak for themselves: Daly finished more races in the points than anyone else; his total of wins was only surpassed by Olofsson (nine—and five of these were at relatively easy Swedish championship races); and he won the BP championship. By the end, he was almost invincible.

The other British championship, sponsored this year by Vandervell Products, was comfortably won by 25-year-old Stephen South. This quiet, even shy, young man from Harrow was in his third season of F3, and began the year running his year-old March chassis on the proverbial shoe string. The day before the first championship round of the year, at Silverstone, he towed the car up completely by himself. Alan Docking's team was also there and helped him to unload. They also agreed to help prepare the car, and Stephen showed just how grateful he was by scoring a dominant victory, which he then emulated the following week at Thruxton. Les Thacker, of BP, kindly stepped in with some sorely needed financial assistance, and it began to look as if South would sweep everyone before him.

The BP and Vandervell champions chase James King's March at Cadwell Park in July, the American's finest hour.





Italian champion Elio de Angelis takes his Chevron inside Nelson Piquet's March. Both men also drove Ralts last year.

From strength to strength

continued

However, the most publicised and controversial incident of the season then took place at Silverstone where, after finishing third on the road in a BP round, both the winner, Geoff Brabham, and Stephen were excluded. The obligatory but stupidly harsh RAC ruling 'confiscated' a massive 27pts from his BP championship total, and left him with a minus score. His initial appeal to the RAC was rejected, and morale took another blow with the Monaco accident. But, like all true professionals, South bounced straight back to win at Brands in the next race.

The frightening British Grand Prix crash, in which the roll-over bar snapped, put him in hospital, but his injuries were fortunately confined to a severe head-ache and a dislocated elbow.

A new Team BP March 773 was soon constructed and, just three weeks later and still in considerable discomfort, Stephen took it to a rousing maiden win at Snetterton. Thereafter, he was always a front runner, but things did not go too well and maybe he became a little

disillusioned. Everything had seemed so rosy, and then it had all gone awry. Snetterton was his last victory, although some consistent placings confirmed him as Vandervell Champion.

An RAC Tribunal was held just prior to the final two BP races and, surprisingly, the organising body quashed his earlier penalty and substituted a £100 fine! Suddenly he was in with a chance of snatching the title, but Daly was well set in his winning ways, and Stephen seemed unable to muster that little extra confidence that had been evident earlier in the year.

Finally, he was relegated to third in the BP series behind a Swedish driver who drove a works Chevron: Eje Elgh. Just 24 years of age and from Karlskoga, Eje had impressed his fellow-countryman Torsten Palm so much in 1976 with an old Super Vee Lola that Torsten enlisted the help of Ronnie Peterson into finding enough sponsorship for their young protégé to contest a full F3 season.

Marlboro (Sweden) and Plastic Padding combined forces to install Eje in a works Chevron B38, and his casual look belied his fire behind the wheel. Two early wins confirmed his amazing ability to learn new circuits very quickly, and by mid-season he looked odds-on favourite to win the BP title. It was not to be. His B38 deteriorated into a difficult car to drive, and Elgh found himself struggling to match the pace of the leaders.

He always displayed very little emotion, win or lose, but he is obviously a very talented

driver. When the chips were down he would always come up fighting. Like at Cadwell in July, where an unenviable practice left him well down the grid, but a determined drive elevated him to a fighting third by the end. In the right team, Eje should show well in F2 next year.

New Zealander Brett Riley was another to show good form. Brett began the year with backing from the New York-based rock band Starz, courtesy of Capitol Records, in a March 773 run by the ill-fated AFMP-Euroracing team. Poor organisation and team politics contrived to dampen the likeable Kiwi's enthusiasm, but his true potential shone through once the preparation of the car had been taken over by David Price Racing.

A win at the Donington Park European championship race was as brilliant as it was surprising. Brett took over the lead after Elgh had made a mistake, and *nothing* was going to keep him from victory. Brett tended to be a bit like that. When he was running third or fourth, then that would do, but as soon as he had a sniff of winning then he'd have a real go—viz the Championship Finals day at Silverstone, when Derek Warwick looked to have the race in the bag with Brett shadowing him all the way; relentless pressure paid off on the last lap, when Derek erred slightly at Stowe and the Kiwi was through in a flash.

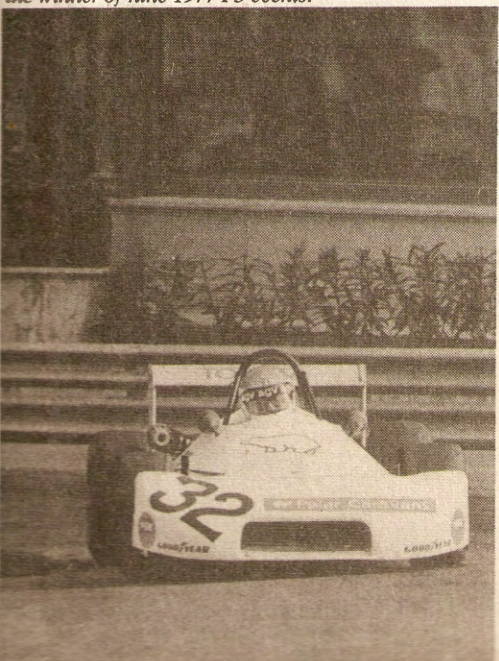
Derek Warwick's move into F3, financed by the family firm Warwick Trailers and Wraydent, looked like continuing his run of success in FF1600 the year before with three early season second places. Somehow, though, the 22-year-old never happened to be in the right place at the right time. Six times the 'bridesmaid' but never the 'bride'. Derek exuded confidence wherever he went, and his driving showed maturity (especially after a mid-season swap from Chevron to Ralt), so he could be the man to beat next season.

One hopes that the Hampshireman has better fortune than Geoff Lees this year. It looked as though 1977 could be Geoff's year after showing such good form at the end of 1976, and he carried on with the same works Chevron team this year driving the new B38 model. But, after an opening burst of no fewer than six third places, things just never improved. Geoff had trouble with the car, scoring only a solitary win; being the poor relation in the team of three, despite the faith shown by Dave Wilson, he was not given the backing that he surely deserved.

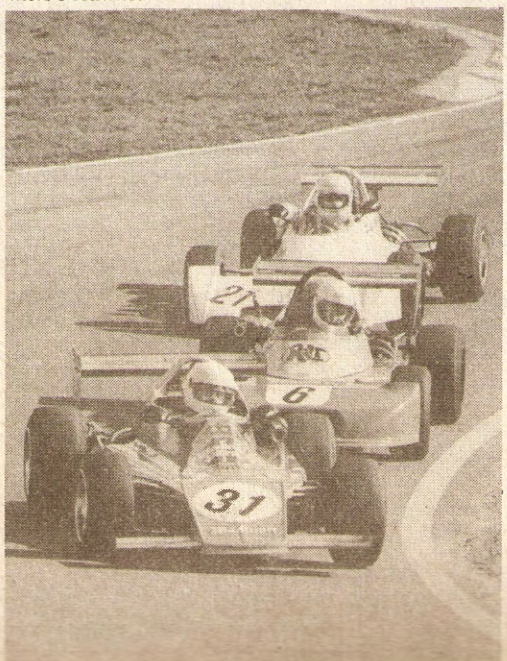
James King was, at 32, the most senior of the regular front-runners and, at the wheel of a works-run March 773, the amicable American often showed a good turn of speed, with a win at the challenging Cadwell Park circuit being his high spot.

Geoff Brabham inexplicably failed to capitalise on a good start to the season. Running one of Ron Tauranac's Ralts from the works base,

Anders Olofsson at Monaco—Swedish champion and runner-up in the European series. Olofsson's Ralt was the winner of nine 1977 F3 events.



German champion Peter Scharmann keeps his Toyota ahead of Thorbjorn Carlsson's Ralt and Jan Lammer's Hawke.



MAJOR EUROPEAN FORMULA 3 RESULTS

DATE/VENUE/STATUS	FIRST	SECOND	THIRD	FOURTH	FIFTH	SIXTH
March 6 Silverstone (GB) Vandervell -1	Stephen South March 763 Toyota/Novamotor	Ian Taylor March 773 Triumph/Holbay	Geoff Lees Chevron B38 Toyota/Novamotor	Tiff Needell March 773 Triumph/Holbay	Bertram Schäfer Ralt RT1 Toyota/Novamotor	Danny Sullivan Argo JM1 Toyota/Novamotor
March 13, Thruxton (GB) BP-1	Stephen South March 763 Toyota/Novamotor	Tiff Needell March 773 Triumph/Holbay	Geoff Lees Chevron B38 Toyota/Novamotor	Derek Daly Chevron B38 Toyota/Novamotor	Don Farthing Ralt RT1 Toyota/Novamotor	John Bright Wheatcroft R18 Toyota/Novamotor
March 20, Paul Ricard (F) European-1	Beppe Gabbiani Chevron B38 Toyota/Novamotor	Bertram Schäfer March 773 Toyota/Novamotor	Piercarlo Ghinzani March 773 Toyota/Novamotor	Anders Olofsson Ralt RT1 Toyota/Novamotor	John Neilsen Ralt RT1 Toyota/Novamotor	Piero Necchi Chevron B38 Toyota/Novamotor
March 20, Varano, (I) Italian-1	Leonardo Verrelli Ralt RT1 Toyota/Novamotor	Roberto Farnetti Ralt RT1 Toyota/Novamotor	Orazio Ragaiolo March 773 Toyota/Novamotor	Lauro Campana Chevron B34 Toyota/Novamotor	G. Carminati Chevron B34 Toyota/Novamotor	Roberto Manzoni Ralt RT1 Toyota/Novamotor
March 26, Oulton Park (GB) BP-2	Eje Elgh Chevron B38 Toyota/Novamotor	Derek Warwick Chevron B38 Toyota/Novamotor	Geoff Lees Chevron B38 Toyota/Novamotor	Geoff Brabham Ralt RT1 Toyota/Novamotor	Derek Daly Chevron B38 Toyota/Novamotor	Stephen South March 763 Toyota/Novamotor
March 27, Nürburgring (D) European-2	Piercarlo Ghinzani March 773 Toyota/Novamotor	Anders Olofsson Ralt RT1 Toyota/Novamotor	Ulf Svensson Ralt RT1 Toyota/Novamotor	Dieter Kern Maco 376 BMW/GmbH	Peter Schärmann Toj F301 BMW/GmbH	Piero Necchi Chevron B38 Toyota/Novamotor
March 27, Nürburgring (D) German-1	Piercarlo Ghinzani March 773 Toyota/Novamotor	Piero Necchi Chevron B38 Toyota/Novamotor	Bertram Schäfer Ralt RT1 Toyota/Novamotor	Ole Veijlund Ralt RT1 Toyota/Novamotor	Heinz Scherle March 753 Toyota/Novamotor	Ulf Svensson Ralt RT1 Toyota/Novamotor
April 3, Silverstone (GB) BP-3	Ian Taylor March 773 Triumph/Holbay	Stephen South March 763 Toyota/Novamotor	Geoff Lees Chevron B38 Toyota/Novamotor	Derek Daly Chevron B38 Toyota/Novamotor	James King March 773 Toyota/Novamotor	Derek Warwick Chevron B38 Toyota/Novamotor
April 11, Zandvoort (NL) European-3	Anders Olofsson Ralt RT1 Toyota/Novamotor	John Neilsen Ralt RT1 Toyota/Novamotor	Piercarlo Ghinzani March 773 Toyota/Novamotor	David Kennedy March 773 Toyota/Novamotor	Huib Rothengatter March 763 Toyota/Novamotor	Beppe Gabbiani Chevron B38 Toyota/Novamotor
April 11, Thruxton (GB) BP-4	Eje Elgh Chevron B38 Toyota/Novamotor	Derek Warwick Chevron B38 Toyota/Novamotor	Mario Ferraris March 773 Toyota/Novamotor	James King March 773 Toyota/Novamotor	Brett Riley March 773 Toyota/Novamotor	Derek Daly Chevron B38 Toyota/Novamotor
April 24, Zolder (B) European-4 BP-5	Piercarlo Ghinzani March 773 Toyota/Novamotor	Piero Necchi Chevron B38 Toyota/Novamotor	Geoff Lees Chevron B38 Toyota/Novamotor	Eje Elgh Chevron B38 Toyota/Novamotor	David Kennedy March 773 Toyota/Novamotor	Derek Warwick Chevron B38 Toyota/Novamotor
May 1, Brands Hatch (GB) BP-6	Stephen South March 763 Toyota/Novamotor	Derek Warwick Chevron B38 Toyota/Novamotor	Geoff Lees Chevron B38 Toyota/Novamotor	Eje Elgh Chevron B38 Toyota/Novamotor	Derek Daly Chevron B38 Toyota/Novamotor	Brett Riley March 773 Toyota/Novamotor
May 1, Mugello (I) Italian-2	Elio de Angelis Chevron B38 Toyota/Novamotor	Beppe Gabbiani Chevron B38 Toyota/Novamotor	Roberto Campominosi Ralt RT1 Toyota/Novamotor	Marzio Romano Ralt RT1 Toyota/Novamotor	Orazio Ragaiolo Ralt RT1 Toyota/Novamotor	Fernando Spreafico Ralt RT1 Toyota/Novamotor
May 8, Osterreichring (A) European-5	Anders Olofsson Ralt RT1 Toyota/Novamotor	Piercarlo Ghinzani March 773 Toyota/Novamotor	Nelson Piquet Ralt RT1 Toyota/Novamotor	Elio de Angelis Chevron B38 Toyota/Novamotor	Ulf Svensson Ralt RT1 Toyota/Novamotor	Daniele Albertin March 773 Toyota/Novamotor
May 8, Valllunga (I) Italian-3	Guido Pardini March 763 Toyota/Novamotor	Roberto Farnetti Ralt RT1 Toyota/Novamotor	Marcello Rosei March 773 Toyota/Novamotor	Filippo Niccolini Ralt RT1 Toyota/Novamotor	Fernando Spreafico Ralt RT1 Toyota/Novamotor	Augusto Avanzani March 773 Toyota/Novamotor
May 15, Monza (I) Italian-4	Oscar Pedersoli Ralt RT1 Toyota/Novamotor	Beppe Gabbiani Chevron B38 Toyota/Novamotor	Marzio Romano Ralt RT1 Toyota/Novamotor	Orazio Ragaiolo Ralt RT1 Toyota/Novamotor	Fernando Spreafico Ralt RT1 Toyota/Novamotor	Guido Dacco March 773 Toyota/Novamotor
May 21, Monte Carlo (MC) BP-8	Didier Pironi Martini Mk21 Toyota/Novamotor	Elio de Angelis Chevron B38 Toyota/Novamotor	Anders Olofsson Ralt RT1 Toyota/Novamotor	Stefan Johansson Argo JM1 Toyota/Novamotor	Geoff Brabham Ralt RT1 Toyota/Novamotor	Oscar Pedersoli Ralt RT1 Toyota/Novamotor
May 28, Nürburgring (D) German-2	Rudi Dötsch Chevron B38 Toyota/Novamotor	Peter Schärmann Toj-F302 Toyota/Novamotor	Jochen Dauer Chevron B38 Toyota/Novamotor	Wolfgang Locher Ralt RT1 Toyota/Novamotor	Heinz Scherle March 753 Toyota/Novamotor	Werner Klein Chevron B38 Toyota/Novamotor
May 29, Imola (I) European-6 Italian-5	Piercarlo Ghinzani March 773 Toyota/Novamotor	Oscar Pedersoli Ralt RT1 Toyota/Novamotor	Piero Necchi Chevron B38 Toyota/Novamotor	Elio de Angelis Chevron B38 Toyota/Novamotor	Anders Olofsson Ralt RT1 Toyota/Novamotor	Daniele Albertin March 773 Toyota/Novamotor
May 29, Brands Hatch (GB) BP-7	Stephen South March 763 Toyota/Novamotor	Derek Daly Chevron B38 Toyota/Novamotor	Eje Elgh Chevron B38 Toyota/Novamotor	Geoff Lees Chevron B38 Toyota/Novamotor	Derek Warwick Chevron B38 Toyota/Novamotor	Thorkild Thyrring Chevron B38 Toyota/Novamotor
June 5, Karlskoga (S) Swedish-1	Anders Olofsson Ralt RT1 Toyota/Novamotor	Mats Nygren March 763 Toyota/Novamotor	Clas Sigurdson Ralt RT1 Toyota/Novamotor	Stefan Johansson Argo JM1 Toyota/Novamotor	Hakan Aliksson Ralt RT1 Toyota/Novamotor	Thorbjörn Carlsson Ralt RT1 Toyota/Novamotor
June 6, Silverstone (GB) Vandervell-3	Geoff Brabham Ralt RT1 Toyota/Novamotor	Ian Flux Ralt RT1 Toyota/Novamotor	Patrick Gaillard Chevron B38 Toyota/Novamotor	Derek Warwick Chevron B38 Toyota/Novamotor	Ian Grob Chevron B38 Toyota/Novamotor	Ian Taylor March 773 Triumph/Holbay
June 7, Donington Park (GB) BP-8	Geoff Brabham Ralt RT1 Toyota/Novamotor	Ian Flux Ralt RT1 Toyota/Novamotor	Stephen South March 763 Toyota/Novamotor	Derek Daly Chevron B38 Toyota/Novamotor	Derek Warwick Chevron B38 Toyota/Novamotor	Ian Taylor March 773 Triumph/Holbay
June 12, Enna, (I) European-7, Italian-6	Oscar Pedersoli Ralt RT1 Toyota/Novamotor	Piercarlo Ghinzani March 773 Toyota/Novamotor	Marcello Rosei March 773 Toyota/Novamotor	Filippo Niccolini Ralt RT1 Toyota/Novamotor	Daniele Albertin March 773 Toyota/Novamotor	Roberto Farnetti Ralt RT1 Toyota/Novamotor
June 12, Wunstorf (D) German-3	Werner Klein Chevron B38 Toyota/Novamotor	Peter Schärmann Toj F302 Toyota/Novamotor	Wolfgang Klein Chevron B38 Toyota/Novamotor	Rudi Niggemeler Maco 376 Toyota/Novamotor	Michael Korten Maco 376 Toyota/Novamotor	Thomas von Löwis of Menar Ralt RT1 Toyota/Novamotor
June 18, Anderstorp (S) Swedish-2	Anders Olofsson Ralt RT1 Toyota/Novamotor	Eje Elgh Ralt RT1 Toyota/Novamotor	Mats Nygren March 763 Toyota/Novamotor	Hakan Aliksson Ralt RT1 Toyota/Novamotor	Clas Sigurdson Ralt RT1 Toyota/Novamotor	Ulf Svensson Ralt RT1 Toyota/Novamotor
June 19, Thruxton (GB) BP-9	Geoff Lees Chevron B38 Toyota/Novamotor	Derek Warwick Chevron B38 Toyota/Novamotor	Derek Daly Chevron B38 Toyota/Novamotor	James King March 773 Toyota/Novamotor	Paul Bernasconi Ralt RT1 Toyota/Novamotor	Ian Grob Chevron B38 Toyota/Novamotor
June 26, Monza (I) European-8 Italian-7	Elio de Angelis Ralt RT1 Toyota/Novamotor	Beppe Gabbiani Chevron B38 Toyota/Novamotor	Piero Necchi Ralt RT1 Toyota/Novamotor	Piercarlo Ghinzani March 773 Toyota/Novamotor	Roberto Campominosi Ralt RT1 Toyota/Novamotor	Fernando Spreafico Ralt RT1 Toyota/Novamotor
July 8, Donington Park (GB) non-champ	John Bright Wheatcroft R18 Toyota/Novamotor	Mario Pati Ralt RT1 Toyota/Novamotor	Paul Bernasconi Ralt RT1 Toyota/Novamotor	Jorge Koechlin Argo JM1 Toyota/Novamotor	Chris Farrell Chevron B38 Toyota/Novamotor	John Stokes Chevron B38 Toyota/Novamotor
July 10, Cadwell Park (GB) BP-10	James King March 773 Toyota/Novamotor	Stephen South March 763 Toyota/Novamotor	Eje Elgh Chevron B38 Toyota/Novamotor	Derek Warwick Chevron B38 Toyota/Novamotor	Mario Ferraris March 773 Toyota/Novamotor	Geoff Lees Chevron B38 Toyota/Novamotor

MAJOR EUROPEAN FORMULA 3 RESULTS cont.

DATE/VENUE/STATUS	FIRST	SECOND	THIRD	FOURTH	FIFTH	SIXTH
July 10 Falkenberg (S) Swedish-3	Anders Olofsson Ralt RT1 Toyota/Novamotor	Slim Borgudd Ralt RT1 Toyota/Novamotor	Thorbjörn Carlsson Ralt RT1 Toyota/Novamotor	Ulf Svensson Ralt RT1 Toyota/Novamotor	Mats Nygren March 763 Toyota/Novamotor	Cias Sigurdson Ralt RT1 Toyota/Novamotor
July 16, Silverstone (GB) Vandervell-4	Anders Olofsson Ralt RT1 Toyota/Novamotor	Elio de Angelis Ralt RT1 Toyota/Novamotor	Nelson Piquet Ralt RT1 Toyota/Novamotor	Beppe Gabbiani Chevron B38 Toyota/Novamotor	Mats Nygren March 763 Toyota/Novamotor	Eje Elgh Chevron B38 Toyota/Novamotor
July 24, Croix-en-Ternois (F) European-9	Derek Daly Chevron B38 Toyota/Novamotor	Beppe Gabbiani Chevron B38 Toyota/Novamotor	Nelson Piquet Ralt RT1 Toyota/Novamotor	Bertram Schäfer Ralt RT1 Toyota/Novamotor	Patrick Gaillard Chevron B38 Toyota/Novamotor	Anders Olofsson Ralt RT1 Toyota/Novamotor
July 24, Diepholz (D) German-4	Heinz Scherle March 753 Toyota/Novamotor	Michael Korten Maco 376 Toyota/Novamotor	Peter Scharmann Toj F302 Toyota/Novamotor	Alan Smith Chevron B38 Toyota/Novamotor	Thomas von Löwis of Menar Ralt RT1 Toyota/Novamotor	Werner Fischer March 763 BMW/GmbH
July 31, Donington Park (GB) BP-11	Eje Elgh Chevron B38 Toyota/Novamotor	Thorkild Thyrring Chevron B38 Toyota/Novamotor	Derek Daly Chevron B38 Toyota/Novamotor	Brett Riley March 773 Toyota/Novamotor	Geoff Brabham Ralt RT1 Toyota/Novamotor	Derek Warwick Chevron B38 Toyota/Novamotor
July 31, Misano (I) Italian-8	Elio de Angelis Ralt RT1 Toyota/Novamotor	Piero Necchi Ralt RT1 Toyota/Novamotor	Piercarlo Ghinzani March 773 Toyota/Novamotor	Beppe Gabbiani Chevron B38 Toyota/Novamotor	Guido Pardini March 763 Toyota/Novamotor	Oscar Pedersoli Ralt RT1 Toyota/Novamotor
August 7, Knutstorp (S) European-10 Swedish-4	Anders Olofsson Ralt RT1 Toyota/Novamotor	Nelson Piquet Ralt RT1 Toyota/Novamotor	Beppe Gabbiani Chevron B38 Toyota/Novamotor	Jac Nelleman Ralt RT1 Toyota/Novamotor	John Neilsen Ralt RT1 Toyota/Novamotor	Henrik Spellerberg Ralt RT1 Toyota/Novamotor
August 7, Snetterton (GB) BP-12	Stephen South March 773 Toyota/Novamotor	Eje Elgh Chevron B38 Toyota/Novamotor	Geoff Lees Chevron B38 Toyota/Novamotor	Tiff Needell March 773 Triumph/Holbay	Derek Daly Chevron B38 Toyota/Novamotor	Patrick Gaillard Chevron B38 Toyota/Novamotor
August 13, Osterrichring (A) non-champ	Derek Daly Chevron B38 Toyota/Novamotor	Nelson Piquet Ralt RT1 Toyota/Novamotor	Anders Olofsson Ralt RT1 Toyota/Novamotor	Willi Siller Chevron B38 Toyota/Novamotor	Ulf Svensson Ralt RT1 Toyota/Novamotor	Patrick Gaillard Chevron B38 Toyota/Novamotor
August 14, Anderstorp (S) Swedish-5	Stefan Johansson Argo JM1 Toyota/Novamotor	Slim Borgudd Ralt RT1 Toyota/Novamotor	Mats Nygren March 763 Toyota/Novamotor	Thorbjörn Carlsson Ralt RT1 Toyota/Novamotor	Hakan Aliksson Ralt RT1 Toyota/Novamotor	Michael Bender Van Diemen 376 Toyota/Novamotor
August 14, Magione (I) Italian-9	Beppe Gabbiani Chevron B38 Toyota/Novamotor	Piercarlo Ghinzani March 773 Toyota/Novamotor	Oscar Pedersoli Ralt RT1 Toyota/Novamotor	Guido Pardini March 763 Toyota/Novamotor	Filippo Niccolini Ralt RT1 Toyota/Novamotor	Roberto Manzoni Ralt RT1 Toyota/Novamotor
August 14, Zolder, (B) German-5	Bertram Schäfer Ralt RT1 Toyota/Novamotor	Peter Scharmann Toj F302 Toyota/Novamotor	Werner Klein Chevron B38 Toyota/Novamotor	Michael Korten Maco 376 Toyota/Novamotor	Jochen Dauer Chevron B38 Toyota/Novamotor	Rudi Dötsch Chevron B38 Toyota/Novamotor
August 21, Kassel-Calden (D) European-11, German-6	Nelson Piquet Ralt RT1 Toyota/Novamotor	David Kennedy Argo JM1 Toyota/Novamotor	Anders Olofsson Ralt RT1 Toyota/Novamotor	John Neilsen Ralt RT1 Toyota/Novamotor	Peter Scharmann Toj F302 Toyota/Novamotor	Henrik Spellerberg Ralt RT1 Toyota/Novamotor
August 21, Varano (I) Italian-10	Piero Necchi Ralt RT1 Toyota/Novamotor	Elio de Angelis Ralt RT1 Toyota/Novamotor	Filippo Niccolini Ralt RT1 Toyota/Novamotor	Orazio Ragaiolo Ralt RT1 Toyota/Novamotor	Oscar Pedersoli Ralt RT1 Toyota/Novamotor	Roberto Farnetti Ralt RT1 Toyota/Novamotor
August 27, Donington (GB) European-12 Vandervell-5	Brett Riley March 773 Toyota/Novamotor	Eje Elgh Chevron B38 Toyota/Novamotor	Derek Daly Chevron B38 Toyota/Novamotor	Piercarlo Ghinzani March 773 Toyota/Novamotor	Geoff Brabham Ralt RT1 Toyota/Novamotor	Nelson Piquet Ralt RT1 Toyota/Novamotor
August 29, Silverstone (GB) Vandervell-6	Beppe Gabbiani Chevron B38 Toyota/Novamotor	Stephen South March 773 Toyota/Novamotor	Nelson Piquet Ralt RT1 Toyota/Novamotor	Derek Daly Chevron B38 Toyota/Novamotor	Brett Riley March 773 Toyota/Novamotor	Tiff Needell March 773 Triumph/Holbay
September 4, Mallory Park (GB) non-champ	Stephen South March 773 Toyota/Novamotor	Mario Pati Ralt RT1 Toyota/Novamotor	Ian Grob Chevron B38 Toyota/Novamotor	Chris Farrell Chevron B38 Toyota/Novamotor	Pierre Dieudonné Ehrlich BP3 Toyota/Novamotor	Wyatt Stanley March 753 Toyota/Novamotor
September 11, Brands Hatch (GB) BP-13	Derek Daly Chevron B38 Toyota/Novamotor	Eje Elgh Chevron B38 Toyota/Novamotor	Derek Warwick Ralt RT1 Toyota/Novamotor	Brett Riley March 773 Toyota/Novamotor	Stephen South March 773 Toyota/Novamotor	Ian Flux Ralt RT1 Toyota/Novamotor
September 11, Karlskoga (S) Swedish-6	Anders Olofsson Ralt RT1 Toyota/Novamotor	Mats Nygren March 763 Toyota/Novamotor	Stefan Johansson Argo JM1 Toyota/Novamotor	Ulf Svensson Ralt RT1 Toyota/Novamotor	Slim Borgudd Ralt RT1 Toyota/Novamotor	Cias Sigurdson Ralt RT1 Toyota/Novamotor
September 18, Jarama (E) European-13	Nelson Piquet Ralt RT1 Toyota/Novamotor	David Kennedy Argo JM1 Toyota/Novamotor	Piercarlo Ghinzani Ralt RT1 Toyota/Novamotor	Anders Olofsson Ralt RT1 Toyota/Novamotor	Bertram Schäfer Ralt RT1 Toyota/Novamotor	Huub Rothengatter March 763/773 Toyota/Novamotor
September 18, Ulm-Mengen (D) German-7	Rudi Dötsch Chevron B38 Toyota/Novamotor	Jochen Dauer Chevron B38 Toyota/Novamotor	Michael Korten Maco 376 Toyota/Novamotor	Peter Scharmann Toj F302 Toyota/Novamotor	Heinz Scherle March 753 Toyota/Novamotor	Werner Fischer Ralt RT1 BNW/GmbH
September 25, Mallory Park (GB) BP-14	Derek Daly Chevron B38 Toyota/Novamotor	Derek Warwick Ralt RT1 Toyota/Novamotor	Brett Riley March 773 Toyota/Novamotor	James King March 773 Toyota/Novamotor	Stephen South March 773 Toyota/Novamotor	Eje Elgh Chevron B38 Toyota/Novamotor
September 25, Monza (I) Italian-11	Piercarlo Ghinzani March 773 Toyota/Novamotor	David Kennedy Argo JM1 Toyota/Novamotor	Roberto Farnetti Ralt RT1 Toyota/Novamotor	Piero Necchi Ralt RT1 Toyota/Novamotor	Orazio Ragaiolo Ralt RT1 Toyota/Novamotor	Guido Pardini March 763 Toyota/Novamotor
October 2, Nürburgring (D) German-8	Anders Olofsson Ralt RT1 Toyota/Novamotor	Ulf Svensson Ralt RT1 Toyota/Novamotor	Rudi Dötsch Chevron B38 Toyota/Novamotor	Thomas von Löwis of Menar Ralt RT1 Toyota/Novamotor	Heinz Scherle March 753 Toyota/Novamotor	Reto Jorg Chevron B38 Toyota/Novamotor
October 2, Silverstone (GB) Vandervell-7	Brett Riley March 773 Toyota/Novamotor	Derek Warwick Ralt RT1 Toyota/Novamotor	Stephen South March 773 Toyota/Novamotor	Nigel Mansell Lola T570 Toyota/Novamotor	Mario Pati Ralt RT1 Toyota/Novamotor	Patrick Gaillard Chevron B38 Toyota/Novamotor
October 9, Vallelunga (I) European-14 Italian-12	Oscar Pedersoli Ralt RT1 Toyota/Novamotor	Piero Necchi Ralt RT1 Toyota/Novamotor	Piercarlo Ghinzani March 773 Toyota/Novamotor	Elio de Angelis Ralt RT1 Toyota/Novamotor	Siegfried Storr Chevron B38 Toyota/Novamotor	Marcello Rosei March 773 Toyota/Novamotor
October 16, Donington Park (GB) BP-15	Derek Daly Chevron B38 Toyota/Novamotor	Geoff Brabham Ralt RT1 Toyota/Novamotor	Stephen South March 773 Toyota/Novamotor	Eje Elgh Chevron B38 Toyota/Novamotor	James King March 773 Toyota/Novamotor	Mario Pati Ralt RT1 Toyota/Novamotor
October 23, Magione (I) Italian-13	Elio de Angelis Chevron B38 Toyota/Novamotor	Piercarlo Ghinzani March 773 Toyota/Novamotor	Piero Necchi Chevron B38 Toyota/Novamotor	Guido Pardini Ralt RT1 Toyota/Novamotor	Orazio Ragaiolo Ralt RT1 Toyota/Novamotor	Oscar Pedersoli Ralt RT1 Toyota/Novamotor
October 30, Thruxton (GB) BP-16	Derek Daly Chevron B38 Toyota/Novamotor	Geoff Lees Chevron B38 Toyota/Novamotor	Brett Riley March 773 Toyota/Novamotor	Aryon Cornelison March 773 Toyota/Novamotor	David Kennedy Argo JM1 Toyota/Novamotor	Patrick Gaillard Chevron B38 Toyota/Novamotor
November 12, Thruxton (GB) non-champ	Derek Daly Chevron B38 Toyota/Novamotor	Stephen South March 773 Toyota/Novamotor	Patrick Gaillard Chevron B38 Toyota/Novamotor	Geoff Lees Chevron B38 Toyota/Novamotor	Nigel Mansell Lola T570 Toyota/Novamotor	Ian Flux Ralt RT1 Toyota/Novamotor

From strength to strength

continued

Geoff scored two wins on consecutive days at Silverstone and Donington in June but otherwise achieved very little. A disqualification for a leaking airbox in April and the ensuing penalty smashed any aspirations he may have had of becoming BP champion in his Esso backed car.

Of the other regulars, Frenchman Patrick Gaillard impressed many viewers with his spectacular and confident handling of a privately-run Chevron, and he should be a man to watch in 1978. The 1976 Grovewood Award winner, Tiff Needell, battled as hard as he was worth with the under-powered Triumph-engined Uni-part Racing team March, and ended up being generally faster than his team-mate Ian Taylor, although it was Ian who scored the team's only win following Brabham's exclusion at Silverstone.

European championship

As previously mentioned, the FIA series featured a long tussle between an Italian and a Swede before, towards the end of the year, their dominance was threatened by a Brazilian, an Irishman and a brace of Italians.

Piercarlo Ghinzani, a quiet, rugged-looking 25-year-old garage-owner from Milan, took the title by dint of the more consistent placings with his Allegrini March 773. Piercarlo's car started as part of the AFMP-Euroracing concern and was run by the last initial, 'P'—Paulo Pavanello. But the collapse of the English side of the operation and the subsequent upheaval failed to ruffle the Italian in the slightest. He just got on with the job in hand, and finished in the top four in each of his first eight races to pull out an unassailable lead. Ghinzani was in his third season of F3 but his first in a competitive car, and he showed remarkable resilience in overcoming the political pressures to become the second Italian in succession to be European champion.

His main rival, Anders Olofsson, is similar in many ways. He is also 25 and is also in his third season of F3, but he had saved up money himself to run a new Ralt which he prepared and entered with the help of his father. Anders scored the same number of wins as Ghinzani, but a decision to miss out on the race at Enna due to a clashing Swedish championship race proved to be rather expensive. If he had made the long trek to Sicily, the chances are that he would have picked up nine useful points and hauled himself that much closer to Ghinzani.

The fortunes of Brazilian driver Nelson Piquet changed mid-way through the year and coincided with a swap from March to Ralt. His accident-prone initiation into European racing disappeared, so that he became a consistent front-runner. He set fastest lap, a new record, at the Donington Park race and also scored two very good wins at Kassel-Calden and Jarama to finish third in the series. A concerted F3 effort next year should bring plenty of reward for this ex-kartist.

The second Dubliner to appear in this feature is 24-year-old David Kennedy who, unlike his compatriot Derek Daly, preferred to concentrate on the European events. David fixed up a deal with his Group Waterworks sponsor (plus additional backing from Findus) to run in the AFMP team. Unfortunately, he suffered more than the other drivers and had an awful time trying to recover something from the shambles. He borrowed a Ralt without much success at the British Grand Prix race and was finally fixed up to run a works Argon on the few remaining continental races. He ran competitively in the

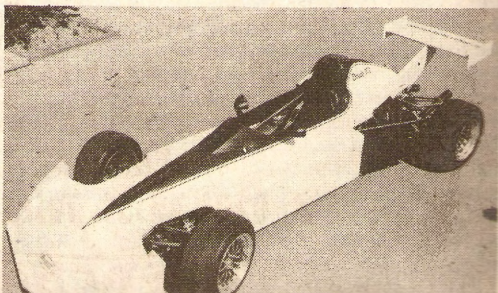
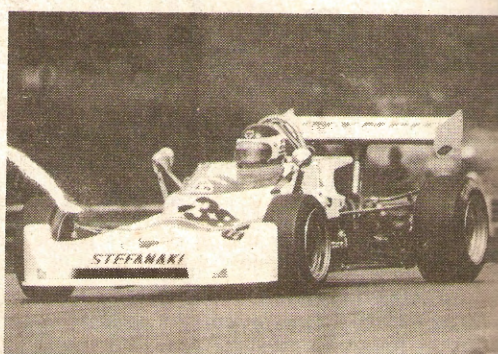
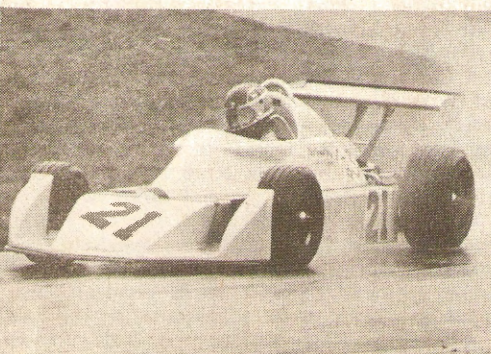
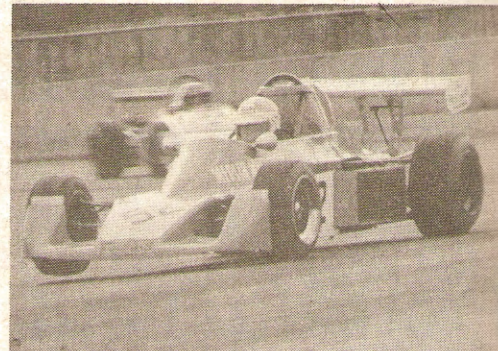
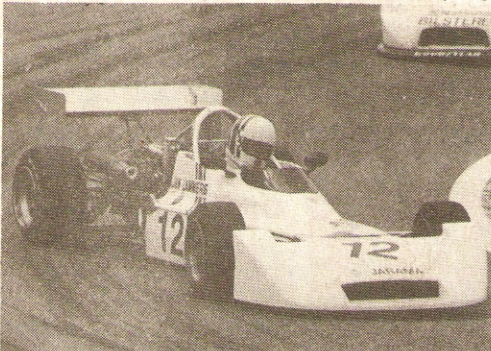
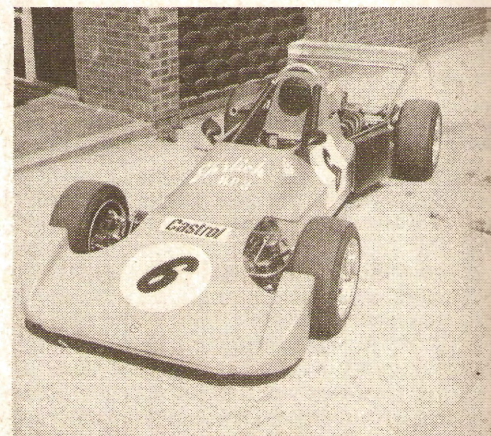
car in its first race at Knutsdorp, but dropped back with an electrical fault, and followed this with a fine second place at Kassel-Calden. Another second place came at Jarama, after which he looked quite capable of winning the very last race of the year at Vallelunga before being rudely punted off by an over-eager Beppe Gabbiani. The jovial, red-haired Irishman never gives up trying, and always gives of his best.

The two Italians to show well were the complete opposite to the likes of Kennedy. Both Beppe Gabbiani and Elio de Angelis come from rich families, the former from near Milan and the other from Rome. Twenty-year-old Gabbiani rocked the regulars at Paul Ricard when he won his very first motor race! His seven years of experience in karting had obviously been put to good effect but, apart from this win and another good victory at Silverstone in August, Beppe has not had a very good season. He became noted for his propensity to crash, which reached a climax in the very last race when he collided needlessly with Kennedy and had to be taken to hospital for a check-up (on his mentality?). De Angelis, on the other hand, had a far more impressive year, racing firstly a Chevron and then a Ralt backed by the family construction firm. Elio won the Monza Lotteria in June and went on to take the national title, as well as to finish seventh in the European series. If he keeps his head, it won't be long before he's in Formula 1.

Italian championships

This was where de Angelis really made his mark. The 19-year-old won his third ever race (again, a former kart champion) at Mugello with the Chevron, and then won twice more with the Ralt, at Monza and Misano. By the

Chevron, March and Ralt were again the dominant chassis in F3 last year, but the category continues to attract interest from smaller manufacturers. Above: The latest Ehrlich. Below left, top to bottom: Hawke DL18 (Jan Lammers driving); Anson SA2 (Gary Anderson); Derichs 37 (Erwin Derichs). Below right, top to bottom: Wheatcroft R18 (John Bright); Lola T570 (George Aposkitis); Druid 377.



EUROPEAN FORMULA 3 CHAMPIONSHIP

	Nat	Mar 20 Paul Ricard	Mar 27 Nurburgring	Apr 11 Zandvoort	Apr 24 Zolder	May 08 Osterrehring	May 29 Imola	Jan 12 Enna	Jun 26 Monza	Jul 24 Croix-en-Ternois	Aug 07 Knutsdorp	Aug 21 Kassel-Calden	Aug 27 Donington Park	Sep 18 Jarama	Oct 09 Vallelunga	Total points
1	Piercarlo Ghinzani	4	3	4	9	4	9	6	3	1	9	9	3	4	4	61
2	Anders Olofsson	3	9	9	1	3	2	1	6	4	4	1	1	3	1	46
3	Nelson Piquet	9	1	1	6	6	6	1	4	6	4	9	1	9	1	33
4	Beppe Gabbiani	1	1	1	1	1	1	1	1	1	1	1	1	1	1	26
5	Oscar Pedersoli	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
6	Piero Necchi	1	1	1	1	1	1	1	1	1	1	1	1	1	1	22
7	Elio de Angelis	1	1	1	1	1	1	1	1	1	1	1	1	1	1	18
8	David Kennedy	1	1	1	1	1	1	1	1	1	1	1	1	1	1	17
9	Derek Daly	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13
10	John Nielsen	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13
11	Bertram Schäfer	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11
12	Brett Riley	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9
	Eje Elgh	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9
	etc															

BP FORMULA 3 CHAMPIONSHIP

	Nat	Mar 13 Thruxton	Mar 26 Oulton Park	Apr 03 Silverstone	Apr 11 Thruxton	Apr 24 Zolder	May 22 Monte Carlo	May 29 Brands Hatch	Jun 07 Donington Park	Jun 19 Thruxton	Jul 10 Cadwell Park	Jul 31 Donington Park	Aug 07 Snetterton	Sep 11 Brands Hatch	Sep 25 Mallory Park	Oct 16 Donington Park	Oct 30 Thruxton	Total points
1	Derek Daly	3	2	3	1	3	1	7	3	4	4	4	3	10	10	10	9	69
2	Eje Elgh	9	4	1	10	1	1	4	4	1	1	1	1	7	1	3	1	56
3	Stephen South	9	1	7	1	1	1	3	4	1	1	1	1	3	2	4	1	56
4	Geoff Lees	4	4	5	1	4	1	2	2	1	1	1	1	3	3	1	1	41
5	Derek Warwick	1	7	1	6	1	1	1	1	1	1	1	1	4	6	1	1	40
6	James King	1	1	2	3	1	1	1	1	1	1	1	1	3	3	2	1	22
7	Brett Riley	1	1	1	2	1	1	1	1	1	1	1	1	3	4	1	1	16
8	Ian Taylor	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11
9	Piercarlo Ghinzani	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9
	Didier Pironi	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9
	Tiff Needell	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9
	etc																	

VANDERVELL FORMULA 3 CHAMPIONSHIP

	Nat	Mar 06 Silverstone	May 01 Brands Hatch	Jun 06 Silverstone	Jul 16 Silverstone	Aug 27 Donington Park	Aug 29 Silverstone	Oct 01 Silverstone	Total points
1	Stephen South	22	22	10	1	4	15	12	75
2	Brett Riley	1	15	10	1	20	10	22	58
3	Derek Warwick	1	1	22	1	1	1	15	41
4	Geoff Brabham	4	10	1	2	8	1	1	36
5	Eje Elgh	3	1	1	1	15	1	1	34
6	Derek Daly	1	1	1	1	12	1	1	34
7	Nelson Piquet	1	1	1	1	12	1	1	30
8	Beppe Gabbiani	1	1	1	1	10	1	1	30
9	Ian Taylor	15	4	6	1	1	1	1	26
10	Geoff Lees	12	12	1	1	1	1	1	24
11	Tiff Needell	10	2	1	1	1	1	1	23
	Anders Olofsson	1	1	1	20	3	1	1	23
	etc								

proved to be not as successful as the B34 design, even though it differed only slightly. Generally speaking, it seemed that the Chevron tended to handle marginally better on the short, twistier circuits, whereas the Ralts proved to be more stable through fast, sweeping bends. Hence, we had the situation of the more affluent runners like de Angelis and Necchi bringing an example of *each* chassis along to every circuit, and using the one better suited for the race!

March also sold a lot of cars, but it seemed that drivers were having to try that much harder to stay with the other front-runners. The Bicester car apparently had very few vices and was suited to all tracks, fast or no, and so was seen as a good compromise. Recent testing of the new car, however, would indicate that they may have found something really special for 1978—if we are to believe everything we hear!

Jo Marquart produced some more examples of his attractive Argo design, which went well in the hands of David Kennedy and Stefan Johansson, while Peter Scharmann showed the competitiveness of the Toj in Germany, where Ernst Maring's beautiful Maco and the Derichs were also to be found.

In this country, John Bright showed a good turn of speed with the Mike Pilbeam-designed Wheatcroft R18, which the Leicester man had built up from the car used previously by Richard Morgan, while Lola ran their T570 model all year but with little hope until they recruited the services of the brilliant young Nigel Mansell, who gave the Huntingdon firm much better prospects for the future.

Dr Ehrlich brought out a new car, the RP3, for Pierre Dieudonné to drive, but this proved to be no better than the previously used model, while a new Technic, based on the 1976 Viking, appeared only in practice at Monaco. Various old GRD and Van Diemen derivatives appeared in Scandinavia. One of the saddest stories was the enforced retirement of the radical new Anson, which promised much but never had the backing to underline the team's enthusiasm.

Tyres and engines

The tyre front was very stable on the surface, with almost everyone using the products of Goodyear, either the G54, which was obligatory for British runners in dry conditions, or the softer G50 compound, which was the tyre for Europe. There was, however, much going on under the surface. M&H were still trying to break into the Goodyear dominated market, while it seems that Michelin are to follow Renault into F3 next year. Persistent rumours that Pirelli are also to be involved are, as yet, unconfirmed, but if so then there could be a real tyre war next year. Whether that will be good for the sport, we shall have to wait and see.

As for engines, well, if you didn't have a Toyota then you were, quite simply, not in with a prayer. The well-proven and very reliable Japanese unit is now almost universally used, most of them built up by the Novamotor concern, although rebuilds were carried out by many top tuners including John Judd, John Penistan and Swindon.

The Triumph engine, again tuned by Holbay, was used by the Unipart team but proved unreliable and simply not fast enough, while a few BMW motors were used in Europe and the odd Ford twin-cams still appeared from time to time in the cars of the less well-off competitors.

With the involvement of Renault next season, there could be someone, at long last, to challenge the superiority of the Toyotas. ■

Facing page, top: European F3 at the Osterrehring. As all is chaos behind him, Piquet (Ralt) leads Daly (Chevron). Olofsson (Ralt), Siller (Chevron) and Svensson (Ralt). Bottom: British BP racing at Cadwell Park. Warwick and Elgh (Chevroons), lead Cornelisen (March), Brabham (Ralt), Lees and Gaillard (Chevroons), Needell and Ferraris (Marches) and the rest.

Germany

Consistency certainly paid off for Austrian driver Peter Scharmann, as he scored only one win in the German series, but backed this up with three seconds, a third and a fourth with his unusual and very good-looking Toj F302. Peter ran the Warsteiner-sponsored car first with a BMW engine, but then switched to the ubiquitous Toyota unit and ran out a comfortable winner from Rudi Dötsch in the first of three KWS-entered Chevroons. Rudi won three races but failed to finish in another three, so ended up just ahead of Heinz Scherle, who persevered well with a two-year-old March. Michael Korten always was quick in his attractive Maco, while the most experienced of them all, Bertram Schäfer, decided to concentrate on Europe with his Klaus Zimmerman Ralt, and so forfeited any chances of another national championship.

The competing cars

Whether you had a Ralt RT1, a March 773 or a Chevron B38 mattered very little last year; a quick driver was able to show his talents in any of these 'big three' chassis. The Ralts proved particularly popular on the continent, where they scored numerous successes, but there were fewer to be seen on this side of the channel and only Geoffrey Brabham of the home-based runners achieved a victory.

After the results of the previous year, the Bolton-based Chevron cars sold well, especially in the first part of the year. However, the B38

From strength to strength

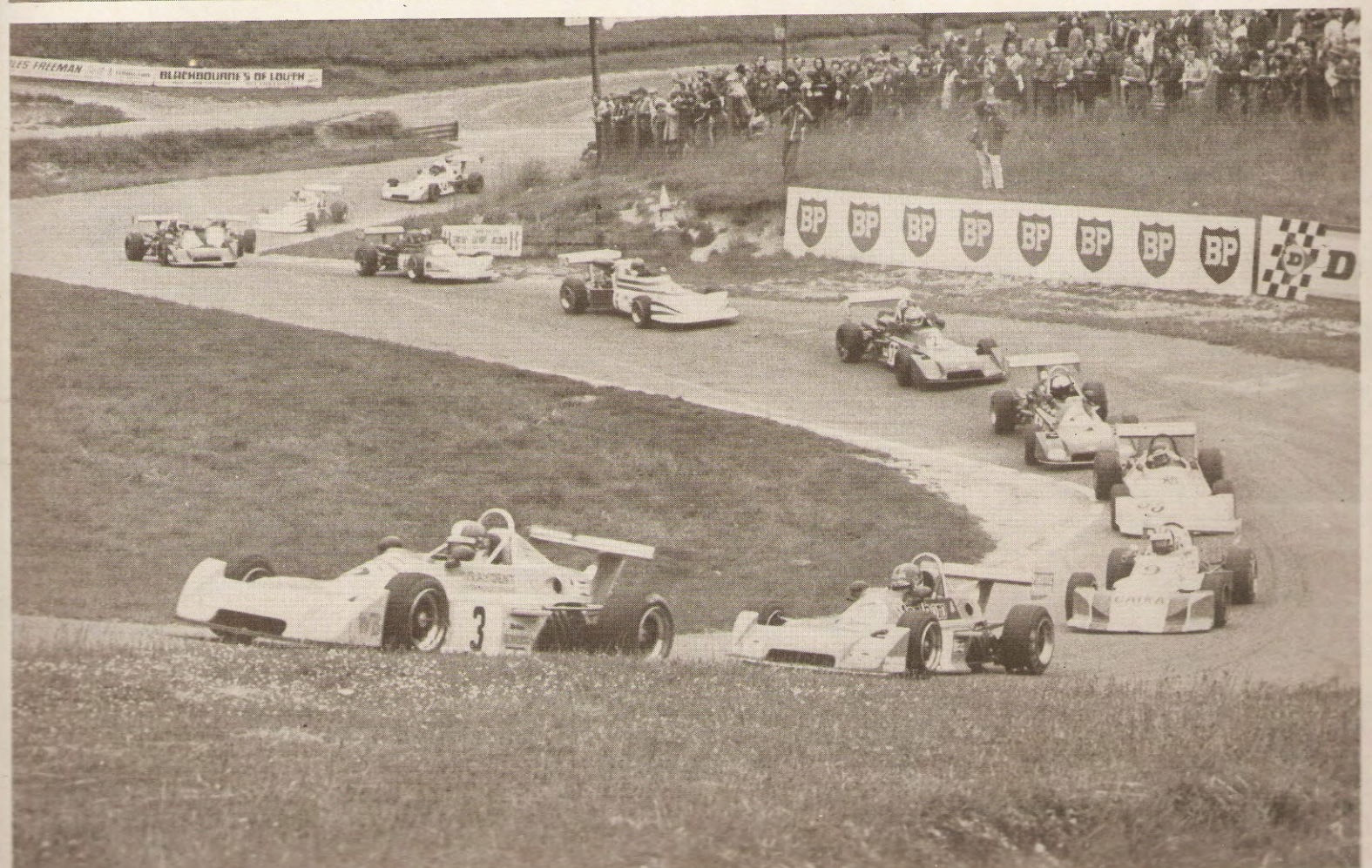
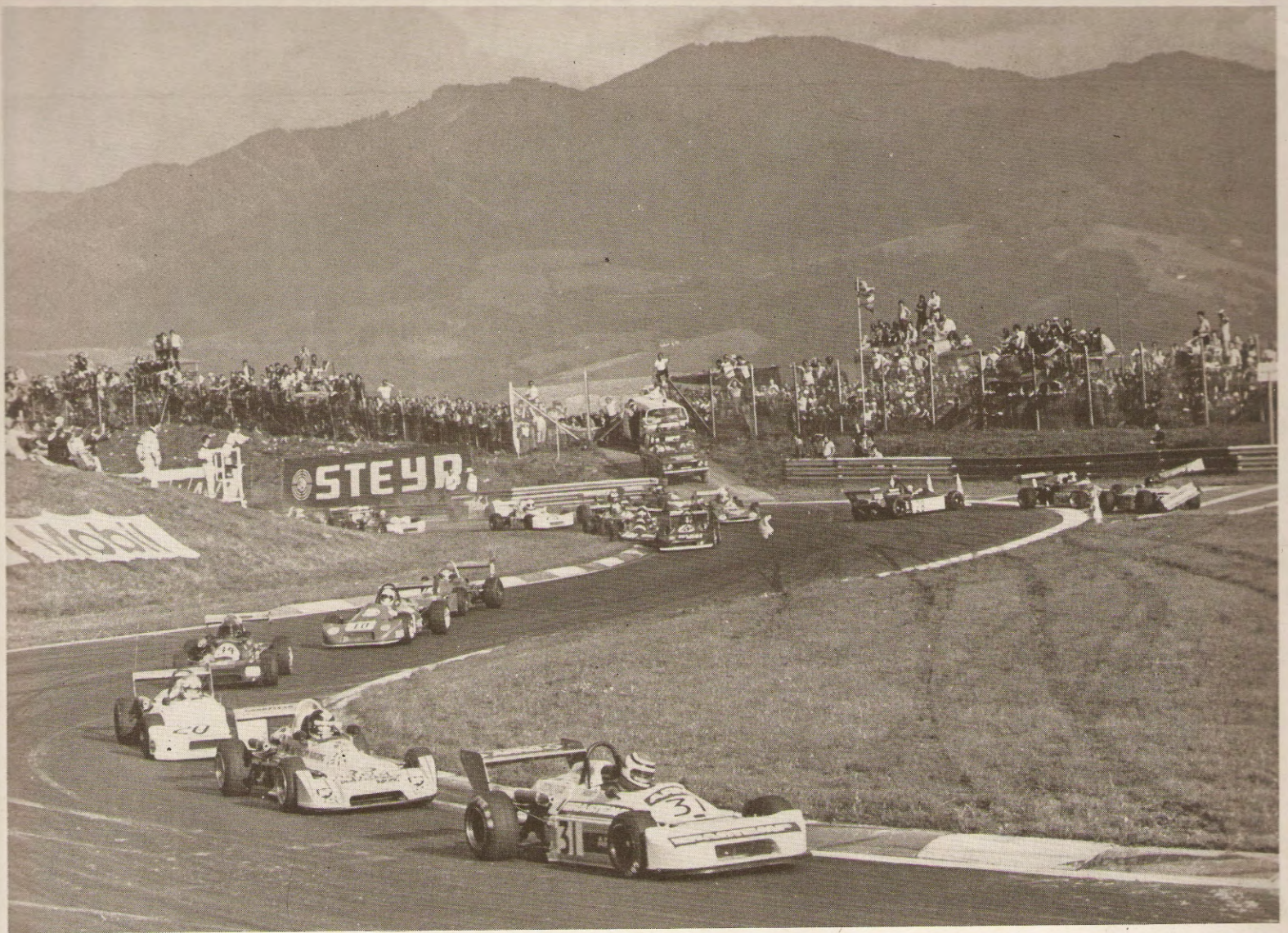
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salvage fourth place, ahead of the even more ragged but probably more talented Gabbiani, who stayed loyal to Chevron and Paulo Trivellato.

Scandinavia

Anders Olofsson took his Puss-O-Kram Jeans-backed Ralt to victory in every Swedish championship round he contested (five out of six), and so ran out an easy winner of the series, but there was a good fight for second place between the experienced Mats Nygren and young Stefan Johansson. The 28-year-old Mats scored three second places, a third and a fifth with his March 763, and this was just good enough to overcome the one win, a second, a third and a fourth of his promising 20-year-old rival, who drove one of the still rare Argos with considerable verve. Stefan had his best showing at Monaco, where he drove in a most determined fashion to finish third.

The Danish title was a little more hotly contested, and finished with the evergreen Jac Nilleman (Chevron) just ahead of John Nielsen and Henrik Spellerberg in Ralts.



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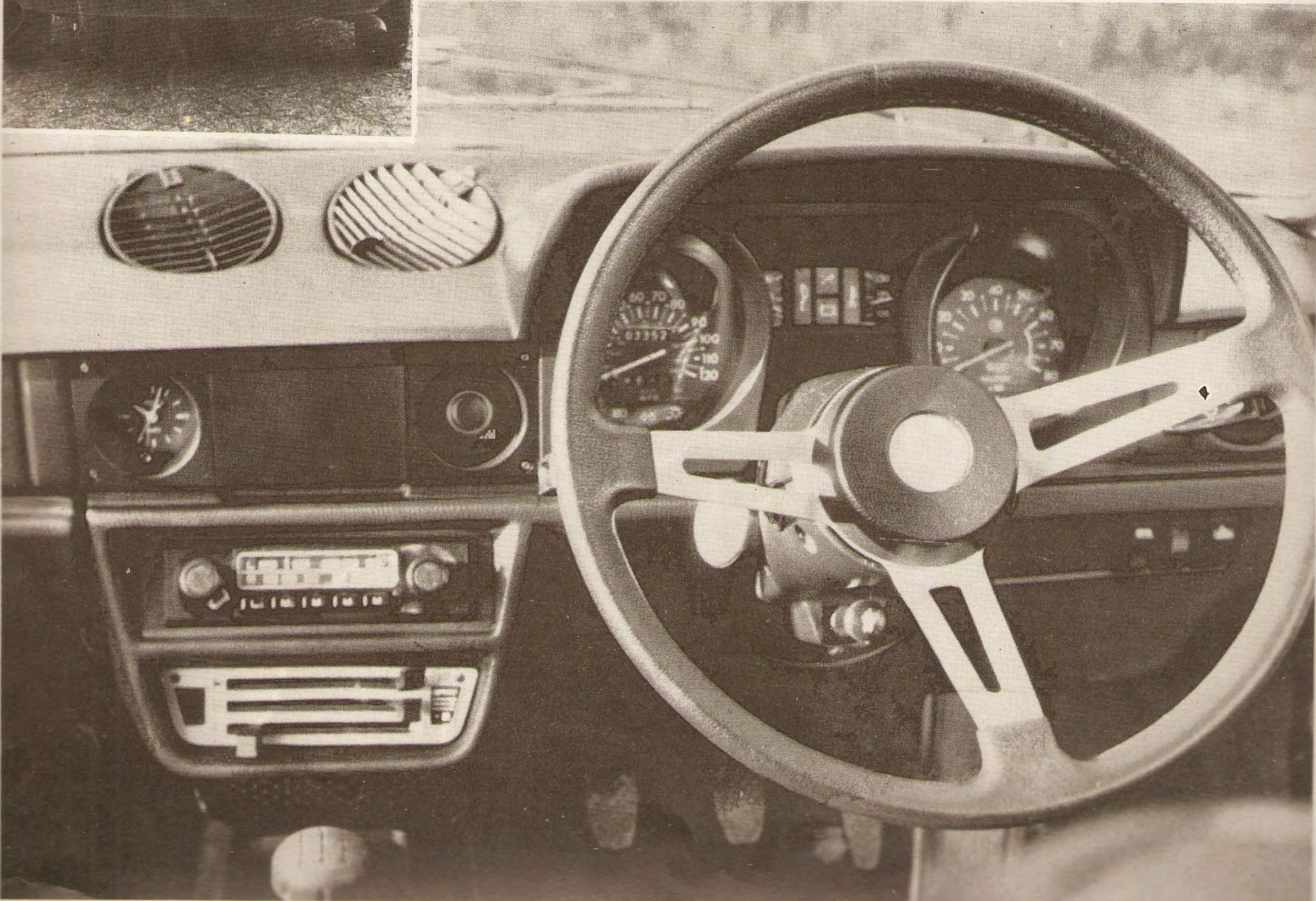
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The Sprint is lower than the 'Sud with less frontal area.

Up-market Alfasud

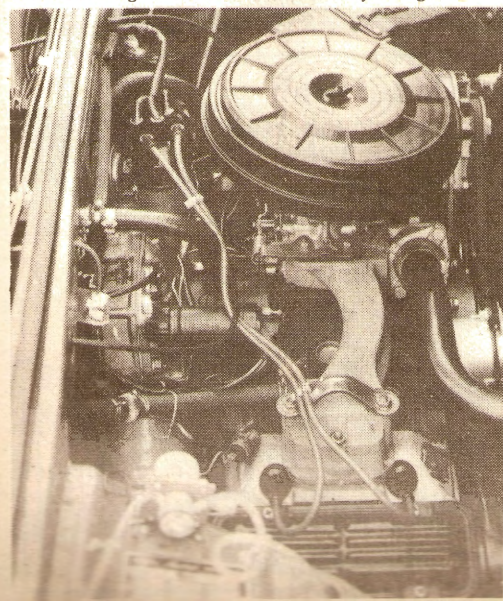
The Alfasud has become a favourite with genuine enthusiasts who really enjoy driving, as opposed to those motorists who prefer merely to press the pedal and let the car do the rest. In its 1186cc form, the car is relatively heavy for its engine size, calling upon the driver to make frequent use of his gearlever if a reasonable performance is to be achieved. Yet, this is forgiven because front-drive safety and stability are combined with handling more typical of a rear-drive sports car, and a very well-balanced one at that, to an extraordinary extent.

The Alfasud 1300ti has a 1286cc version of the flat-four power unit. This gives improved acceleration and flexibility and, as is often the case, better fuel economy. However, the extra 8bhp does very little for the maximum speed, which is no doubt limited by the shape of the standard body when the 100mph mark is approached.

A frankly up-market Alfasud, the Sprint has the 1300ti mechanicals in an entirely new body shell. It is lower and thus has less frontal area, while the longer roofline and tail also confer a reduction in aerodynamic drag. This naturally improves the top-end performance, though there is inevitably a small weight penalty.

It must be realised that the Sprint is not merely a 'Sud with a higher maximum speed. It is an exceptionally good-looking car with an astonishing amount of passenger space. This is no mere 2+2 sports coupé but a full 4-seater, giving ample head and legroom for the rear passengers. There is more luggage space, too.

The short engine is mounted ahead of the gearbox.



with privacy assured by a roll-down cover having touch-and-close fastenings. The interior is very attractive indeed and the driver has a good all-round view, with a proper bucket seat that gives good body location and has a comfortable cloth insert, tastefully decorated with the McAlfa tartan—och aye! The adjustable steering column has six pre-set positions, while the head-rests can be raised or lowered to choice.

Mechanically, the Sprint retains all the well-known features. The flat-four engine has had its stroke lengthened by 5mm but retains the belt-driven camshafts—one per head of the smaller unit. The induction system, with a twin-choke carburettor perched in the middle, is less pleasing to the engineering purist than the two twin-choke carburettors that have long been standard on other Alfa Romeo models. The short engine is mounted ahead of a 5-speed gearbox, which carries the inboard brakes. There are discs all round, the front ones having twin-cylinder calipers with dual circuits. Therefore, no failure could eliminate the front braking, especially as the hand-brake also works on these discs and is really an additional anchor for a most unlikely emergency.

The front suspension has MacPherson geometry and the steering is by rack and pinion. The late and great James Watt hoped that his parallel motion would be his memorial, and indeed it is, in the fore-and-aft location of the dead rear axle. Lateral positioning is by means of a Panhard rod, which should really be named after Emile Levassor who invented it, but *C'est la vie*.

Everything about the Sprint, such as the fit of doors, bonnet, and tailgate, proclaims it to be a quality car. The engine is very flexible and carburation has been greatly improved, but performance is still largely dependent on the use of the gearlever. The longer-stroke engine is not quite so turbine-smooth as its smaller predecessor, but it is still fairly unobtrusive. It is not silent when turning over quickly, but it produces a happy, functional sound that is far from objectionable. In spite of its proximity, the transmission is completely inaudible.

The performance benefits very obviously from the slippery shape of the body and if the extra weight perhaps adds the odd fifth of a second here and there to the standing-start acceleration figures, this is more than counterbalanced by the easier high-speed cruising and an appreciable increase in maximum speed. The gear ratios are well chosen, though perhaps first and second could be a shade higher with advantage. When I tried the Sprint in Italy, I felt the need for a higher second in the mountains, but in England this is not noticeable. The

gearchange is not particularly light in action, but it is rapid and precise.

As always, the roadholding and handling are excellent, the lower centre of gravity tending to reduce roll. There is just enough understeer for stability but the handling closely approaches true neutrality. The car is so well-mannered that it tries to ignore the clumsiness of its driver, affecting not to notice such idiotic actions as lifting off in the middle of fast corner. The brakes are truly excellent and still need no beefing up if Alfa Romeo ever give us that 1600cc engine!

I wash all the road test cars myself, and was struck by the remarkable efficiency of the mudguarding. No doubt its all part of the laminar airflow over the body, but it saved me hours of work and the Sprint still looked smart at the end of long winter journeys. One's passengers never get muddy when entering the car and the riding comfort is good, even in the rear seats.

The heating and ventilation system works well, with a separate and easily regulated flow of cool breathing air. A small suggestion concerns the fabric beneath the screen, which covers the top of the instrument panel: a less shiny finish would reduce reflection. The headlights of modern cars still vary greatly in their effectiveness, but these are first-class.

The Alfasud stands out among small cars, not so much for what it does as for the way in which it does it. The general standard of finish of the standard models is about average for cars of that price, but nothing exceptional. The Sprint starts off with the advantage of having very attractive lines, while both for external finish and interior treatment it is in a class apart. To the motoring connoisseur who wants the best, but prefers a small car for the traffic conditions of today, the Alfasud Sprint must be worth every penny of its higher price.

Specification and performance data

Car Tested: Alfa Romeo Alfasud Sprint 2-door 4-seater coupé, price £3999.

Engine: Four-cylinder boxer, 80x64mm (1286cc). Compression ratio 9 to 1. 76bhp DIN at 6000 rpm. Single overhead camshaft per bank with toothed-belt drive. Weber twin-choke downdraught carburettor.

Transmission: Single dry plate clutch. 5-speed synchromesh gearbox with central remote control, ratios 0.931, 1.115, 1.434, 2.062, and 3.545 to 1. Hypoid final drive, ratio 4.111 to 1. Driveshafts to front hubs.

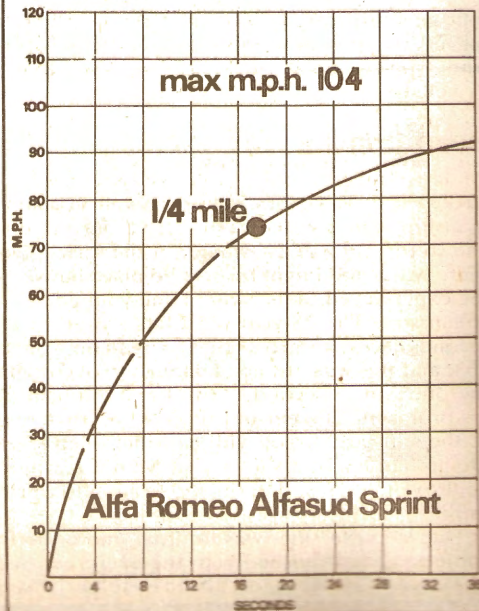
Chassis: Combined steel body and chassis. MacPherson independent front suspension with anti-roll bar. Dead rear axle doubling as anti-roll bar with Watt's linkages, Panhard rod, and coil springs. Servo-assisted, dual-circuit disc brakes, inboard in front. Hand-brake on front discs. Bolt-on light-alloy wheels, fitted 165/70-13 tyres.

Equipment: 12-volt lighting and starting. Speedometer. Rev counter. Oil-pressure, water-temperature, and fuel gauges. Clock. Heating, demisting, and ventilation system, with heated rear window. 2-speed windscreen wipers and washers. Flashing direction indicators with hazard warning. Reversing lights.

Dimensions: Wheelbase 8ft 1in. Track 4ft 6.5in./4ft 5.1in. Overall length 13ft 2.2ins. Width 5ft 2.8ins. Weight 17.5 cwt.

Performance: Maximum speed 104mph. Speeds in gears: fourth 87mph, third 68mph, second 47mph, first 27mph. Standing quarter-mile 18.4s. Acceleration: 0-30mph 3.2s, 0-50mph 8.0s, 0-60mph 11.7s, 0-80mph 22.9s.

Fuel Consumption: 27 to 32 mph.





The long, low XJS looks undeniably impressive.

Travelling in grand style

SIMON TAYLOR goes grand touring in a Jaguar XJS.

Now that petrol is so expensive and speed limits abound wherever you are, it takes the chaos of an air traffic controllers' strike to remind you that the right motor car can still be a highly effective and very enjoyable means of transcontinental travel. Last summer's Dutch Grand Prix fell on that Bank Holiday weekend when Heathrow was at a standstill, and I had the problem of getting to Zandvoort and back in a hurry to cover the race for BBC Radio. All the Ostend boats were full but, surprisingly, our tame travel agent found room on the Friday morning Dover-Calais Sealink ferry, and the boat returning at 8am on Bank Holiday Monday was still half empty. What was needed was the best way to get wife and self, one suitcase and one standard issue Beeb tape recorder the 500 miles from Calais to Zandvoort and back. Five minutes and one telephone call to Jaguar's accommodating Andrew Whyte later, we had laid on just the thing—a gleaming red Jaguar XJS.

Most of the XJSs on the Jaguar press fleet are automatics, but we'd asked for a manual, so our car was almost two years old, with nearly 30,000 miles on the clock. It was the actual car that an ecstatic John Bolster had tested for AUTOSPORT in April last year, achieving 6250rpm in top (a genuine 154mph) and echoing the verdict of other distinguished testers that this is one of the grandest Grand Tourers ever built.

Almost the only adverse criticism of the XJS has been of its looks; certainly the fact that American legislation killed the shovel nose and disappearing headlights of the original design and added those horrid great bumpers means that, unlike so many of its Coventry predecessors, this is not a really beautiful car. And while its performance and weight are very close to the fuel-injected XJ 5.3 saloon, the rear seat accommodation is far inferior—and the saloon is £2600 cheaper. But the long, low XJS looks undeniably impressive, and there is something splendidly selfish about a two-plus-two—par-

ticularly when it is over 16ft long and weighs nearly two tons.

For a two-plus-two is all the XJS is: at the back, unless your passengers are very short, there is insufficient headroom for long journeys, although there are proper seats, beautifully trimmed in leather and with their own seat belts, rather than mere luggage platforms as with some of the GT ilk. The boot, too, is sensibly capacious.

Throughout, the finish and layout are superbly executed: Jaguar have resisted the temptation to provide dials and controls which look impressive in the showroom but are a muddle at 150mph when you really need them. The dash is quite plain, the switchgear functional—air conditioning controls, for example, are blessedly simple—and the vertical gauges for oil pressure, water temperature and the rest are so designed that if all readings are normal their four needles form a straight line which can be seen at a glance. Similarly the front seats look quite plain for a £13,000 car, but after several hours in them the driver and passenger still feel comfortable and at ease—which should be the only criterion for a successful seat.

But perhaps the car's cardinal virtue is its silence, beside which almost any other car feels like a bag of bolts. Driver and passenger are almost uncannily insulated from the outside world, and at more than two miles a minute they sit in air-conditioned peace, with the scenery rushing up through the windscreen like images on the screen of a silent movie. One can experience this quietness at much lower speeds in one or two super-luxury saloons, but it is usually allied to a sense of insecurity because the driver feels insulated from the controls as well. Happily, the Jaguar has that essential tautness of a highly controllable car: although the suspension is soft, the car rolls little under hard cornering, and always feels surefooted and very stable. As a result this bulky car seems to shrink around the driver until it can be driven very fast on narrow, winding roads with complete confidence. As for Jaguar's oft-criticised power steering, on the XJS it has noticeably more feel than on the saloon equivalents (although I would prefer a smaller wheel).

And those effortless brakes call to mind all the giant-hand clichés. I only had to use them really hard once, on a two-lane motorway in Belgium at five o'clock in the morning when a huge *camion* ahead, doing at least 100mph less than us, decided rather late in the day to overtake one of his colleagues. Undramatically we slowed, and it was only afterwards that I thought of the speed at which we had been approaching his tailboard. . . .

In traffic jams the manual gearbox feels a bit heavy, the clutch travel long, but if you want your XJS for traffic jams you specify the automatic. And the astonishing torque of that great engine keeps gearchanging to minimum.

When the planned shovel nose was abandoned, the unattractive heavy bumpers were adopted.



Travelling in grand style

continued

Jaguar say it is possible to put the car in top gear, start it on the button without touching the clutch, and drive away: I didn't subject 'my' car to that treatment, but it is certainly possible to start in 2nd gear and change almost at once into top, if one feels lazy, so efficient is the electronic fuel injection that it is possible to floor the throttle at 5mph in top and, without hiccup or hesitation, the car smoothly gathers speed like a turbine—and once the rev-counter needle is past 2000rpm it is accelerating very fast indeed.

The outward leg of our Dutch journey didn't produce any sensational average speeds, but having had breakfast in London we were at our Zandvoort hotel in time for tea—despite a pleasant but leisurely Channel crossing, the horrors of London's South Circular in the morning rush hour, and monster road works near Rotterdam.

As we sat in a queue, with the outside temperature in the 80s, the air conditioning went briefly on the blink—for long enough for us to appreciate how essential it is (it is a standard fitting to all XJSs). That big engine just the other side of the bulkhead, plus the exhausts passing under the floor, generate a lot of heat.

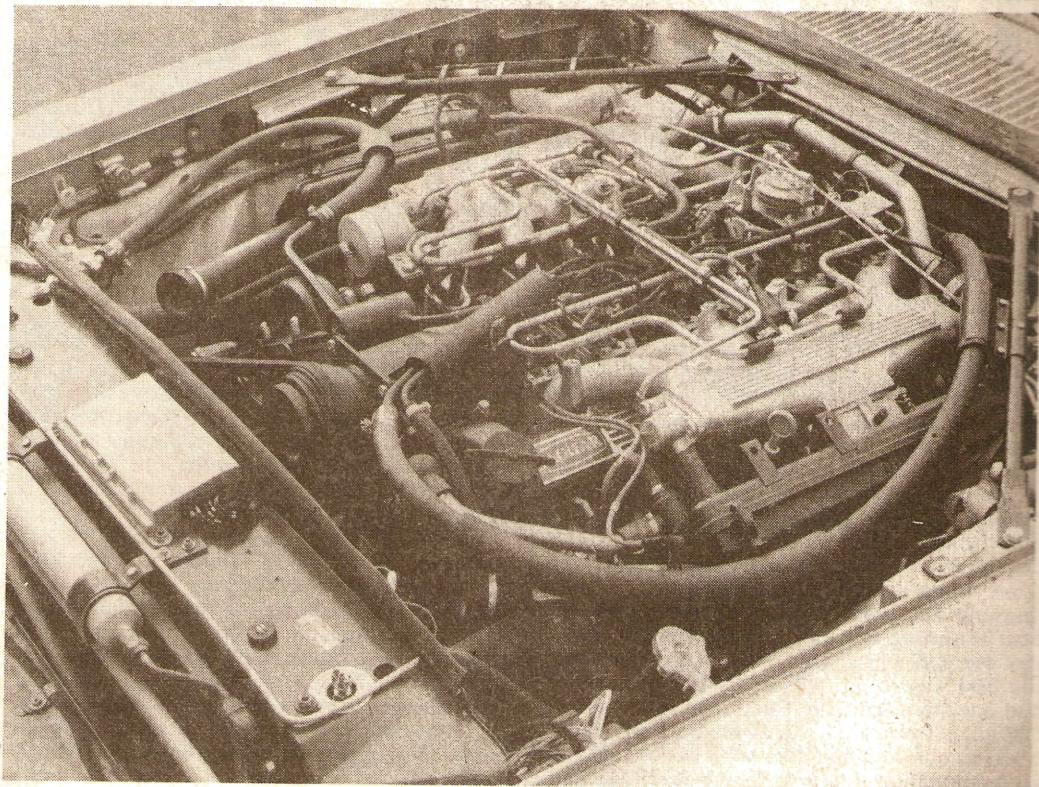
There was heavy rain, too, but the XJS wafted us through this in totally unruffled fashion, the big Dunlops slicing through the water lying on the road, and us relaxed inside, cosseted by the smell of expensive leather and listening to a Poulenc organ concerto on the excellent Philips stereo.

Zandvoort itself was jammed solid for the race, of course, so on Sunday night after the race rather than join the slow-moving queues we went back to our hotel, had a leisurely meal and went early to bed. We asked the porter to wake us at 3am, and at 3.40 the Jaguar was purring softly through the dark deserted streets of Zandvoort and on towards the motorway for the south. Without trying to break any records, and keeping an eye open for Dutch and Belgian police who might feel that our progress was a little out of phase with their speed limits, we settled down to a relaxed 125mph cruising speed—which seemed to require a very small throttle opening, and for which the big Cibié halogen lights were more than adequate.

However, some bits of the motorway seemed more obviously police-patrolled than others, especially in Belgium, and several times we had to slow to a circumspect 65mph or so. Nevertheless Breda came and went, then Antwerp, Ghent, off the motorway and on to narrower country roads with conscientious Belgians on bikes pedalling through the dawn to work, a sleepy *douanier* at the French border, and the slow coast road to Calais, lorry-choked even at this hour. At 6.49am we were at the docks, after 242 miles in 189mins: not an epoch-making average, but a very pleasant drive. We could have had another hour in bed!

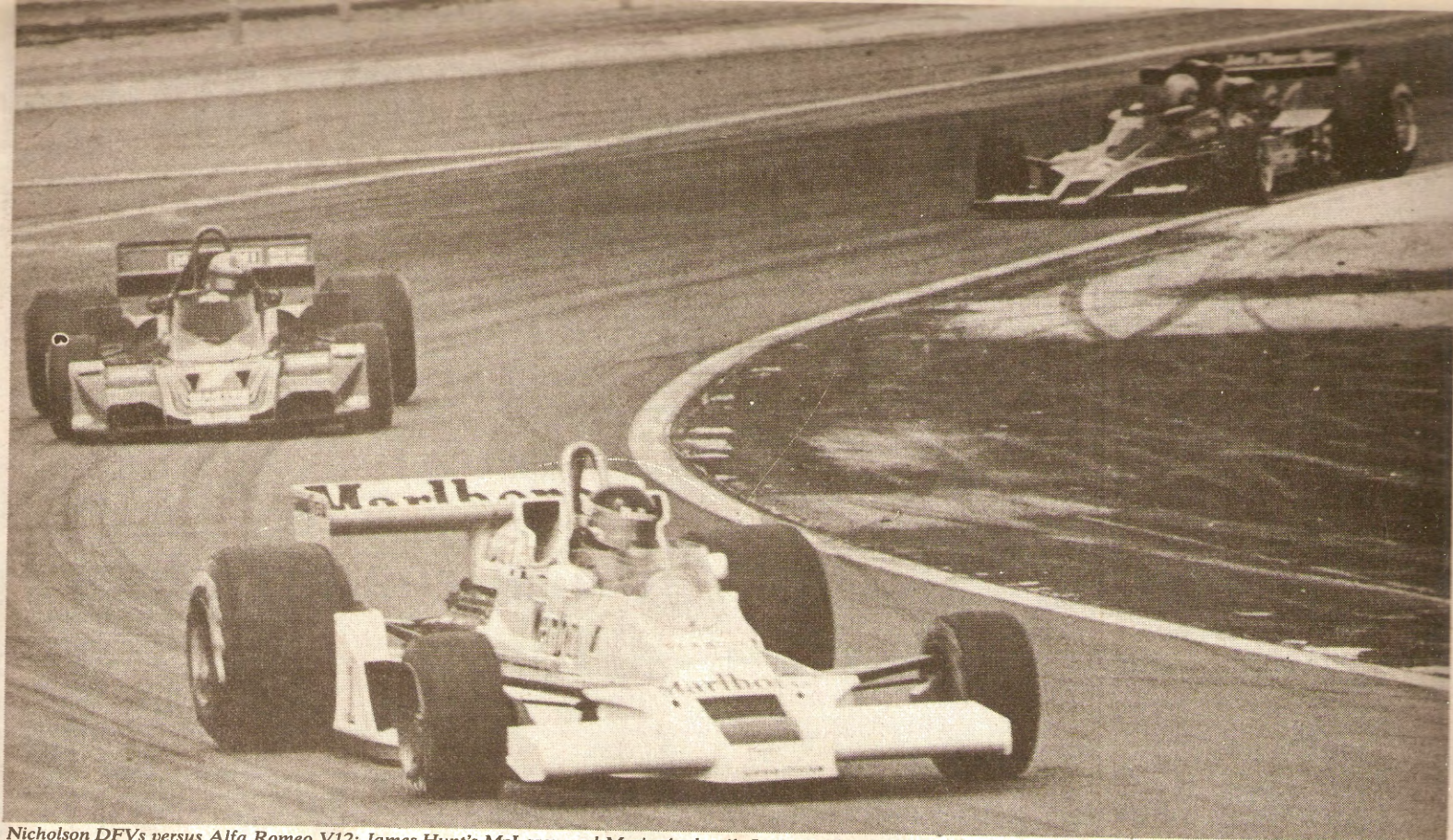
No attempt was made to establish ruthlessly accurate fuel consumption figures, but untangling our litres from our guilders the XJS seemed to have averaged around 16mpg.

A pretty standard conclusion with which to round off comments on a car like the XJS is that of course nowadays a 5.3-litre V12 motor car capable of over 150mph, weighing almost two tons and using a gallon of fuel every 16 miles is an anachronism. But a bit of mental arithmetic showed that, for two people (and accepting that we would have needed transport between airport and circuit) our Zandvoort weekend cost no more than going by air. It took longer, of course (although booking earlier via Ostend or taking the hovercraft would have shortened our time considerably). But the aeroplane we should have come in would have done its fair share of fuel-consuming and air-polluting. And our way was much more fun. The XJS is no anachronism: it's a superb modern touring car.



Top: There is something splendidly selfish about a two-plus-two. Above: A truly impressive engine. Below: Perhaps the least attractive view of the XJS—albeit the most familiar to other road-users!





Nicholson DFVs versus Alfa Romeo V12: James Hunt's McLaren and Mario Andretti's Lotus sandwich John Watson's Brabham-Alfa at Dijon last June.

To power and glory

John Nicholson talks to DOUG NYE about the Formula 1 engine business

Some days just seem to stand out. John Nicholson remembers, in particular, October 6, 1974. For a start that was his 33rd birthday. Then again it was the day on which he clinched the John Player Formula Atlantic Championship at Oulton Park, driving the Lyncar with his own version of a Ford BDA engine. Just to put some icing on the cake away at Watkins Glen the World Championships were won by Emerson Fittipaldi and the McLaren team, using Nicholson-prepared Cosworth DFV power! Some days just seem to stand out. . . .

Nicholson-McLaren Engines Ltd have enjoyed good days since then, with James Hunt's sensational late season reliability and pace combining to give him the Drivers' Championship in 1976 and this year his scoring two more convincing Grand Prix victories on Nicholson power. When Mario Andretti won the Long Beach and Spanish GPs in quick succession, using a Nicholson V8, and then added another (lucky) victory at Dijon, the Hounslow-prepared power units began winning in rival chassis, and that did the McLaren image no harm at all.

It was one morning early in 1969 when John Nicholson first arrived at Heathrow Airport,

fresh from Singapore. He had worked his way that far from his native New Zealand as a racing mechanic, and he set foot on British soil the proud owner of a suitcase, two racing cars back home and a letter from Phil Kerr—joint MD of McLaren Racing—saying “drop in and see us when you come to England.” He hoped at that moment that they needed him, because he “. . . sure as hell needed them!”

The next day he arrived on the doorstep at Colnbrook to see Phil. Much to his surprise he found he was expected, as Alan McCall (like everybody else at McLaren's a total stranger to him) greeted him with “ah, you must be John Nicholson”. When Bruce appeared he was handed a white coat and shown where he could start work stripping an engine! Much to his own embarrassment he had already arranged to see a race at Brands Hatch the next day and asked if they would mind if he didn't start work until Monday.

McLaren Racing needed him nearly as much as he needed them—he was in.

John's background was in engine building. Brought up in Auckland, NZ, he had left school at 15 to become apprenticed in an automotive machine shop run by a friend of his father. That instilled a thorough grounding in practical engineering where standards of fit and tolerance were religiously observed. The company, L. H. Hayter, later Engine Rebores Ltd, expanded and John eventually became a partner. It was taken over by a Group named Motor Specialties and John slowly discovered the frustration of being told by accountants how engines should be rebuilt. Still business was good and to promote the company's services among the racing fraternity John acquired an ex-Dene Hollier Lotus 27 monocoque FJ car with a 1500cc Ford engine and went racing—just like that. He had no knowledge of the sport, had never been particularly interested in it and confesses he “had never even heard of Bruce McLaren and Denny Hulme. . . .”

Successful race driver and engineer: John Nicholson.



"Where else in the world will you find a 3-litre V8 that does what a DFV can do? Where else will you find such value for money?"

Being the kind of quiet and retiring character he is, John Nicholson simply let the Lotus 27's track performances speak for him during that Tasman summer of 1967-68. He didn't make many friends in the racing circus; he just unloaded his car, raced it, loaded up again and trailed home. It was low-key motor sport; "You know," he beams, "the biggest race in New Zealand was the one to the pub!"

Late in '68 he bought Graeme Lawrence's Brabham BT18 and intended to sell the 27. He'd been in the same business for 11 years and felt ready for a change. He wrote to McLaren in the UK and that letter arrived from Phil Kerr plus an offer of the air fare ex-Singapore. So he opted out of the motor business, joined Roly Levis as mechanic on his Brabham BT23C and headed for England via races at Mt Fuji, Hong Kong and Singapore. . . .

When he arrived in the McLaren shop at Colnbrook the Gulf-McLaren team was preparing to defend its CanAm sports car titles. Ex-Traco engineer George Bolthoff was developing a CanAm power unit around a 7-litre Chevrolet ZL-1 V8 in a pokey little room there. With two engines on their stands there was just room for George and John to walk around them. Today as he presides over a spacious shop with 15 employees and bits finding homes in every spare corner, John ruefully recalls that original engine shop as being 100 per cent efficient.

In retrospect the CanAm programme was easy.

"George was a really good guy to work with. When I asked him how he told me how. I didn't give any aggro, we worked long hours and I enjoyed every minute of it. It was fun.

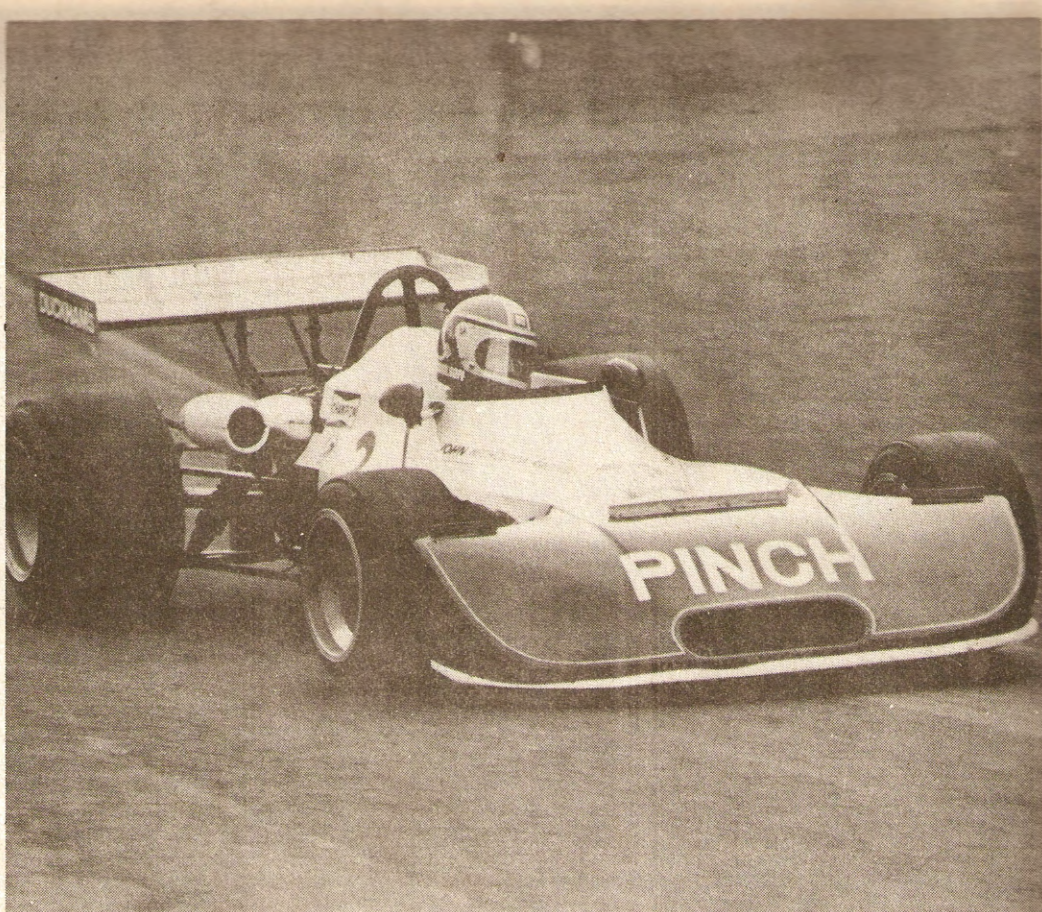
"When we finished the prototype engine we ran it up on Charles Lucas's dyno at Huntingdon to establish ignition and injection settings and that dyno was quite something. The engine ran off a 5-gallon petrol tank standing on a chair. Still, that gave us the standard for each engine that followed. . . .

"Once the series began we'd build up an engine and then run it briefly before whipping it on to a plane at the airport and off to the States. We'd just wheel the engine on its stand out of our little shop into the drive beside the works, couple up a rad and a battery and a can of fuel and fire it up there and then—in the open, no matter what time of day or night. We'd lay the radiator on the ground and play a hose on it and have this great V8 with open exhausts, rumbling and shivering away on its stand in clouds of smoke and steam.

"After about ten minutes when it was warm we'd shut down, hot torque it, adjust the tappets and then run up for another 10-15 minutes until the thing was nearly boiling. Then we'd set the ignition with a timing light, stick it all in the box and put it on the plane.

"CanAm was easy. There's no way you could set up DFVs like that with the competition there is in Formula 1. . . ."

Bolthoff returned to the 'States in late '69 where the McLaren Engines shop was established in Livonia, Detroit. John stayed on at Colnbrook, built up three Chevs for the new 1970 CanAm car's testing and flew out to Detroit that March to rejoin Bolthoff and Lee Muir in the CanAm engine shop. The team used ten new engines each season, and preparation and maintenance on those was enormously time-consuming. For example, off-the-shelf connecting rods each demanded hours of painstaking hand preparation and then a full set was scrapped after two races as a matter of routine. Essentially, Bolthoff's low-budget preparation aimed at power with reliability, and when he moved on Cary Knutson returned to McLaren for 1971. CanAm now saw more competition and Knutson's budget grew while Nicholson was fully occupied merely setting enough en-



Nicholson racing his successful Formula Atlantic Lyncar in 1974.

gines out the door each week.

All this time John had been nursing a growing ambition to become a 'serious racing driver'. During the winter of 1970-71 he had ground the latest CanAm prototype round Goodwood for hour after hour running-in new engines, but coincidentally Cosworth relieved their preparation overload which had almost caused the DFV's downfall in 1970 and announced that they would assist approved specialists in preparing the V8s remote from Northampton.

Teddy Mayer asked John if he was interested in rebuilding McLaren's DFVs and he agreed. "If I ever wanted to be a racing driver that decision screwed me for the rest of my life. . . ."

John looked around the Colnbrook works and found ". . . three or four guys who could rebuild engines. John Steenson from New Zealand was one. He'd come over wanting to be a racing mechanic but one trip as the gofer cured him for life. He became a very fine engine builder and so we got together and got the job started by learning first how a Cosworth came apart and them—more difficult—how it went together again. . . ."

Cosworth willingly showed outside specialists how to prepare the DFV to a certain level, but understandably their willingness tailed off thereafter. Nicholson: "The DFV is like any other engine. It has a lot of little tricks you have to learn—like, there are hundreds of little things which stop an engine surviving".

Reliability became his prime target, as it had been in CanAm. To finish first you must first finish—but it helps if you're in the lead at any time. Denny Hulme always rated one of the so-called 10-series engines (061) as the best McLaren had. John saw an honest 440bhp from this engine on the Champion dynamometer at Heathrow, at a time when a realistic 400-420bhp was the team's DFV average. The engine was promptly stripped and examined in detail but there wasn't much to see. By that time the 1971 season had ended and the older McLaren V8s had been rebuilt by Nicholson and his colleagues Steenson and German-born Peter Hass to 10-series spec, with altered porting, redesigned sump and pistons and a larger oil scavenge pump. The team entered 1972 seeing an honest 440bhp from their engines ". . . and 450 sometimes if you were brave enough to wind it out to ten-five".

In mid-1971 John had acquired a March 703 Atlantic and for 1972 bought the one-off Lyncar from Martin Slater, because "the price was right". Simultaneously he tired of working in the cramped Colnbrook shop ". . . with four guys tripping over each other, bits everywhere, churning out engines for 50 quid a week" and he looked elsewhere.

The Amon engine shop in Reading had just folded and was being taken over by March. Max Mosley made John an offer including a car but it ended up ". . . with me standing to make so much money I just couldn't believe the deal. If he'd offered me half of what he did offer I might have accepted it!"

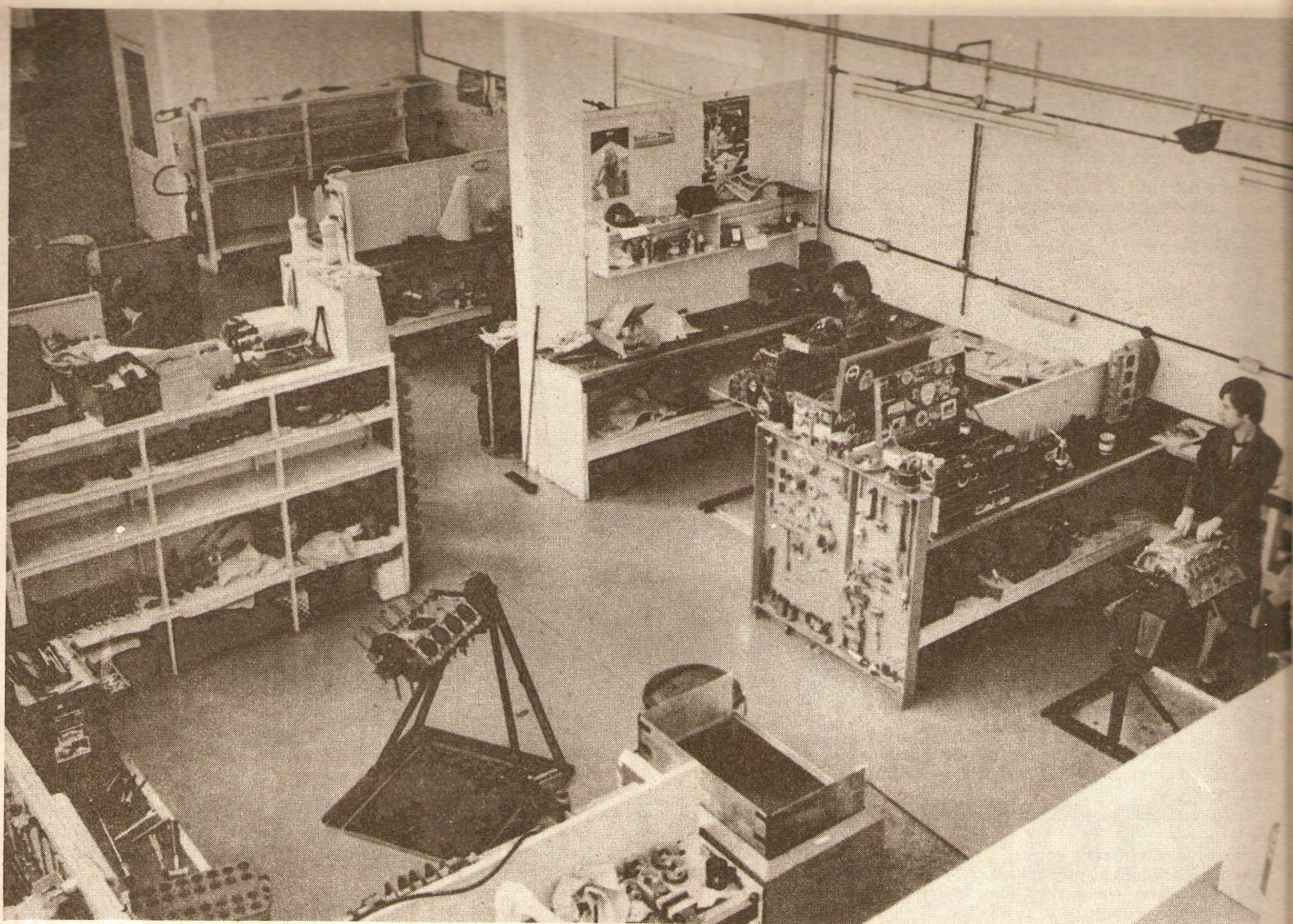
So John returned to Teddy Mayer and Phil Kerr whereupon Teddy once again screwed his chances of becoming a serious racing driver by offering to establish Nicholson McLaren Engines Ltd. On January 1, 1973, the new company was born and new premises were quickly found at the opposite end of the Heathrow runways, in Green Lane, Hounslow. Peter Hass left to take on the March project while John Steenson stayed with Nicholson. While the new works was being fitted out John operated from Colnbrook and still ran his engines on the Champion dyno.

The new works was operating in the spring of 1973 with about 20 DFVs on the books for McLaren, Dave Charlton and various hill-climbers. Still John found time to prepare a Ford BDA Atlantic engine for his Pinch Plant Lyncar and won the BP Championship and came second behind Colin Vandervell in the Yellow Pages Championship in Britain.

Teddy Mayer was all of a twitch over John going racing—"every week he told me how dangerous it was and how I shouldn't allow myself to be strapped into one of those things. He had an investment to protect. . . ."

Bruno Drury of Pinch Plant sponsored John's racing while Bob Gayler of Piper cams produced the parts for those prototype Nicholson-Ford Atlantic engines. Gayler was an old associate whose services had been used on Nicholson-McLaren DFV camshaft developments.

The new company grew rapidly from four men to eight and with Teddy raising no objection to their taking on outside work (after all, the new company had to stand on its own two feet), the customers arrived. At first it was



The Nicholson-McLaren works at Hounslow in Middlesex produced some of the fastest engines in Grand Prix racing last year.

To power and glory

continued

tricky. Graham Hill for one never really believed his Nicholson DFVs were a match for McLaren's—which they were—and while John himself was racing in Atlantic there was customer resistance among his rivals against buying a Nicholson-Ford engine.

Through 1974 and '75 life became hectic. Pinch backed his entry into Formula 1 with the Lyncar-DFV, doing just the British races, for Drury didn't want to travel. John was sixth at Silverstone, second time out, and that first season put only 2000 miles on the chassis. But Teddy could not see his engines improving with John in Formula 1. ("If I was ever going to decide to go racing" says John with rueful retrospection "I should have done it then. . .") In 1975 he contested the Canadian Atlantic series in Alan McCall's Tui but with limited success and ran the F1 car 'horribly'. When plans to buy a McLaren M23 collapsed, it was a bitter disappointment.

But the reputation of Nicholson McLaren DFVs was growing. "Further developments in porting, trumpets, exhausts—stuff like that" brought 470bhp from the later engines, and John insists that the most he has ever seen from a DFV is 485bhp. Power apart, it was scrupulous attention to detail assembly which gave Hunt his remarkably reliable run in the second half of 1976 which helped him steal the championship in the McLaren.

Although Graham Hill had been dubious that all Nicholson McLaren V8s were comparable the message was slowly filtering through that Hounslow had something good to offer—whether or not it was just like Emerson or

James were using. Peter Warr arrived from Lotus to look round and the John Player Specials added NME-prepared DFVs to their armoury. When Mario Andretti won Long Beach and the Spanish GPs this year to score two consecutive Lotus victories on Nicholson engines, John was supplying power to two of the best three Ford teams running—then Wolf took an engine too . . . which cannot have pleased Cosworth all that much.

Andretti won again on Nicholson-McLaren power at Dijon (luckily as at Long Beach but he had always been in contention) and then ironically Hunt won at Silverstone with a Cosworth development engine.

These units produced on loan to Lotus, McLaren and Tyrrell were sealed and pegged up tight to prevent unauthorised inspection but they burst with shattering finality and huge expense to the teams who had to foot the rebuild bills. In the latter part of the season McLaren ran Hunt on their Nicholson engines while the Cosworth development unit went behind Mass's shoulders, and James repaid the Nicholson V8's reliable power with victory at Watkins Glen and Fuji, where Andretti used a Nicholson to put the Lotus 78 on pole.

Not that Nicholson-McLaren engines were as reliable and pure as the driven snow. "You always have some breakages. Teddy tells me that McLaren had 36 GP starts this year—Hunt and Mass in 17 races, plus Villeneuve and Giacomelli—and 25 of those starts were on our engines. Ours broke twice, one major, one minor. They ran the other 11 starts on Cosworths and had five major breakages. That was very expensive. . ."

What breaks?

"Our experience shows a valve spring problem when certain mileages are exceeded and that leads to dropped valves. Experienced drivers are able to pick up signs of failure and stop in time. After that any part will fatigue and break if not replaced in time, like con-rods or pistons. Generally speaking, I would say the

"My experience with turbocharging at this point is nil so I can't really comment. Maybe we will know a little more next year—perhaps a one-off for South Africa?"

engine is very reliable as it stands and that most failures come from problems with installation and people just trying to run too many miles between rebuilds. Then, with Formula 1 being so competitive, the engines are often being worked very hard indeed which can't help reliability at all.

"We've got a shrewd idea of what's going on inside a Cosworth development engine. Those we've used in the McLarens appear to have dropped valves so it's a fair assumption that the camshafts have been changed, maybe also bigger valves, to bring this on. Certainly such changes may have exaggerated the valve-spring problem.

"They appear to give more power, but as I see it they've found a development level which is so borderline they've now got to back-track a bit to hold it all together. As it is they've got their best guys assembling the development engines, hopefully to put some reliability back in by paying attention to all the little things.

"In Japan Jochen Mass's development engine just exploded flat-out in fifth past the pits. It was just sawn in two, a rod was broken and four valves missing. We may save one cylinder head, though we're not sure of that!

"We have also had a couple of rod failures, one of McLaren's in testing and one in Mario's while leading. Both were low-mileage rods and the breaks were very clean. Often all this leaves such a mess it's very difficult to say just what went wrong, but in these cases there's no doubt of rod failure.

"The problem then is why? Cosworth don't seem to have rod trouble, they say. A second

failure with Mario was a rod bolt in a new rod. We've never seen that before. At Silverstone what really happened was that the rear main oil seal failed and let all the oil out and Mario didn't seem to notice it. The oil light must have been glowing. Mario says he nurses them, but I dunno, they all seem to give their engines a pretty hard time to me. . . ."

I understand from Cosworth that in fact they did back-pedal on development engine camshafts just before Monza, and promptly gave Andretti his win there. I also understand that one of Mario's development engine breakages followed oil loss. The Mass breakage in Japan was caused by a piston failure after it had burned, presumably through being run on too weak a mixture.

As John speaks of DFV problems he seems quite critical of Cosworth. Is that intentional?

"I feel strongly there's too much bloody secrecy about what they're trying to do. Look, they've spent a bomb on development and so have we, yet there's this secrecy surrounding Northampton. To me the whole idea is just to keep the Ford alive in Formula 1, and as long as we get involved in a fight with each other we can only kill it.

"One thing really pissed me off. We did a very good engine for Lotus (Andretti's 1976 Fuji winner), and it suddenly turned up on the doorstep at Cosworth's for some back-to-back testing on NGK plugs!

"As if that wasn't bad enough while Cosworth seal their development engines and get all excited about anybody else seeing inside them, they suddenly come on the phone out of the blue and tell us they're running one of our engines and saying 'bloody hell, this thing really goes!'.

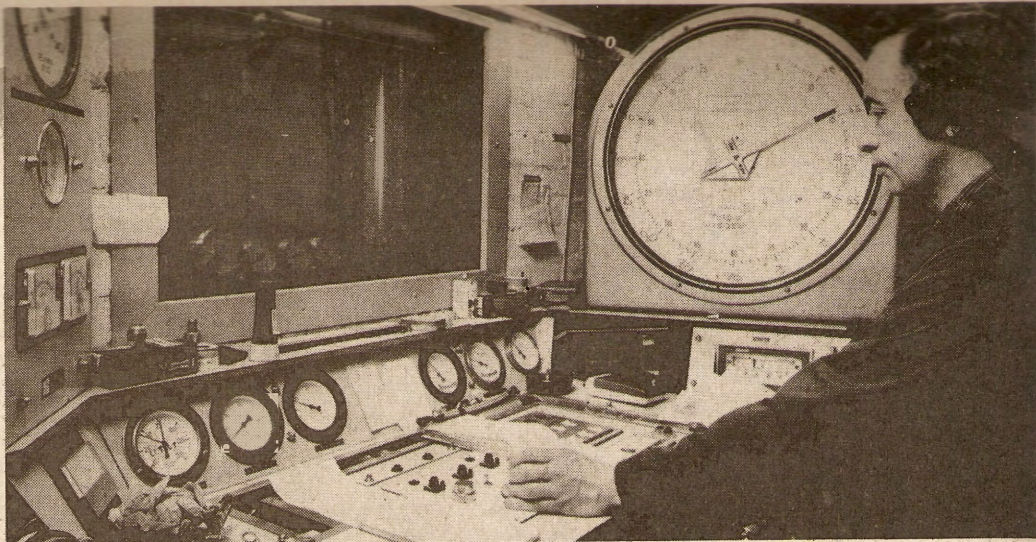
"Obviously we're in close touch with them. We often spot something we think they ought to know about and we then ring them and liaise quite closely with the blokes in their shop. But these things don't seem to get back to Duckworth. I think he's under the impression that we ring to find out how to do things, yet often we get faulty parts sent us in a batch which has escaped their inspection. It's only because my fellers have spotted something wrong that we get their boys stirred up and they have ended up thanking us for raising the alarm. . . ."

The NME engine builders are a youthful bunch, most of whom arrived with only garage mechanic experience and who were trained by John and his old hands. Hunt's Fuji-winning engine was built up and prepared by a former tyre fitter, Chris Ricci. Then there is the famous 'Bill' whose Nicholson engine inscriptions often raise a smile—Bill Alston, a machinist turned engine builder. "We've tried guys with college degrees and—*man*—they're unreal! Been here two days and they 'start running the place. I prefer to take blokes who haven't been around to pick up bad habits and then we train 'em the way we want. That has its drawbacks sometimes", he laughs "when you've trained 'em to accept nothing less than perfect and then they reject a part which my experience tells me will do. Then I can't do anything but say 'You're right' and chuck it back at the supplier!

"We consider Cosworth's inspection has dropped recently although they tell you the engine will accept parts within certain tolerances which I wouldn't use. Then again you suddenly get a batch of parts arrive which are absolutely beautiful.

"Parts themselves are a big problem. We carry a big—and very expensive—stock but because Cosworth are flooded with building DFXs for USAC—and I appreciate the sense in their doing that—there are back orders for 70 DFV heads at this moment. Not one is available and none will be available until January. All we need is a string of testing disasters and we could find ourselves cleaned out."

DFV rebuild charges have spiralled as parts prices ex-Northampton have inflated 5-6 per cent every three months, until recently Cosworth announced an abrupt 10 per cent *reduction* to encourage the customers! Although their rebuild price increased £140 that is nothing compared with the parts saving at 10 per cent off on a major rebuild. Nicholson has no qualms



Top: Nicholson dyno takes a hammering. Above: DFV in for a rebuild.

"I feel strongly that there's too much secrecy about what Cosworth Engineering are trying to do."

however, about Cosworth prices: "Where else in the world will you find a 3-litre V8 that does what a DFV can do? Where else will you find such value for money? I consider their prices cheap and the engines excellent value. . . ."

Meanwhile, perhaps because of future doubts if the Cosworth brigade does not pull together, John is laying plans to build 1.4- and 2.2-litre turbo BMW engines in the Hounslow shop, inheriting McLaren BMW turbo work pioneered at Livonia by Gary Knutson and Wyllie McKoy. This may mean dropping the big off-shore power boat Chevy preparation which NME has done for the Embassy boat, *Yellow Drama* and *Macho* and for Bruce Allison's G8 car. In between they have built 2-litre sports-racing Fords, a multitude of Atlantic BDAs (minimum 30 a year) and these commitments have buried an F3 project based around the alloy-block Chevy Vega engine.

On prospects for turbocharged Formula 1 engines John picks his words carefully—"My experience with turbocharging at this point is nil so I can't really comment. Maybe we will know a little more this time next year" then the ultimate throw-away line which leaves you guessing . . . maybe a one-off car for South Africa? What would that be? Eight cylinders of a DFV or four cylinders? V4 or one bank . . . or perhaps BMW power. . . . ? He says no more.

While all these developments occurred John Nicholson—frustrated racing driver—was disillusioned with cars after that unrewarding 1975 season and took a casual look at the Bristol power boat Grand Prix. He caught the bug and laid plans for a *serious* boat using DFV power! Currently Jackie Wilson is having just such a craft prepared at Cosworth's, he says, but the

authorities would not allow a novice to drive such a beast. So John started with an F2 Mercury-Hodges and began—not literally—at the bottom. He won the British leg of this year's OE (F2) Endurance Championship at Fairford and shared a Cougar Cat with Nick Cripps to place sixth in the Paris 6 Hours, again Bruno Drury sponsored.

His face lights up as he talks of his newfound love, and most of the trophies adorning his office are won on water. "The sensation and excitement in a boat is just unreal! You fly the boats rather than drive 'em. You've got a hand control to crank the outboard leg in and out to trim the boat and dropping its sponsons down into the water acts as the brakes.

"So you're working on this all the time to get the optimum angle on the boat and when you pass or get passed there's some really exciting inter-action between the two hulls, and when you take a turn and a sponson digs in, that boat just turns so fast the G-forces are beyond anything you experience in a car.

"You can't be strapped in, so you just bind yourself with sponge rubber for protection. As the boat moves you don't so much get pressed against the cockpit sides as get thrown clean through 'em. Plus the reliability of those engines is unbelievable. You just drop one in to start the season and leave it. Makes racing a sheer pleasure—and the crowds get a good deal too—24 boats on a mile oval at Fairford and a whole carload gets in for a quid. Can't be bad can it?"

When he isn't presiding over his spotless shop at Hounslow, mulling over Atlantic, DFV or turbo BMW development (which means that if the Renault works then McLaren will have the knowledge to catch them quickly) or racing his boat, John runs an industrial employment agency managed by his wife Julie and a friend as a sideline. That's typical of the man. He doesn't make a lot of noise or look for public acclaim. He's just a practical Kiwi doing a practical job. The results show how well. . . .

Just



James

"In most cars Jackie's times were quite competitive enough to embarrass the current drivers."

Since my last column, I have been running around like a blue-ass fly despite my attempt to spend as much time at home trying to organise my recently purchased house. The most constructive part of my running around was devoted to two test sessions at Paul Ricard. In the second of these, we tried our new 'Batmobile', the M26½, for the first time. But the brunt of our work was done with the standard M26. This was very constructive in that we tried a number of new things, none of which proved any better than the standard set-up, so we ended up running the car just as we had at the end of last year. This was an excellent morale-booster, as our times related to other people testing were very competitive, thus underlining the fact that the Marlboro-McLaren M26 is a pretty good car and had obviously lost nothing sitting in the workshop for the past couple of weeks.

I should add that this is quite often the way testing goes, because even when you are not going faster you are eliminating the things that make you go slower—so you are always learn-

ing. And we did get in some pretty useful tyre testing. With the possibility of a new tyre war with Michelin, courtesy of Ferrari, these tyre tests may prove significant once the season gets under way.

For our second outing at Ricard, we brought the M26½, but, as our time at the track was very limited and I had a lot of testing to do for Goodyear with the regular car, the run in the new car was no more than an exploratory outing, which was all that was intended. There are two technical aspects which our designer Gordon Coppuck has had a go at: the aerodynamics, and the functioning of the rear suspension. The technical details have already been described in the motoring press by experts far better qualified than I, but it is interesting to note that Gordon and Colin Chapman have arrived independently at similar solutions to current problems. This caused a great deal of excitement among the press and enthusiasts as the two cars were unveiled within hours of each other at the French circuit. These 'experts' totally failed to consider the simple fact that two top designers should be thinking along the same logical lines on development, and proceeded to utter of industrial espionage! Anybody who chooses to copy another designer in Formula 1 is unlikely to spend a lot of money building and developing their own replica until such a time that the original prototype has shown itself to be an improvement—it is a lot cheaper to let someone else do the development work for you than to run parallel.

Throughout our test sessions, we had two cars, and my new team-mate Patrick Tambay was working hard in the other. As we all suspected, he was most impressive, both from the point of view of speed/consistency and his concise and constructive comments on the car's behaviour (an essential ingredient for F1). He was so impressive in the first test session, when we just had the M26s there, that he was entrusted with the brunt of the testing on the new car.

Patrick was not the only person to drive the M26, as we had the pleasure of strapping Jackie Stewart into my car. Jackie is currently engaged on a very interesting project for Elf, driving all the different F1 cars he can get his hands on and putting the whole thing together as a TV film. His years of retirement do not seem to have blunted that outstanding talent, and in most cars his times were quite competitive enough to embarrass the current drivers. Unfortunately in our case, despite the fact that McLarens had had him over to the factory for a fitting and had gone to the trouble of making him a special seat, it turned out that the fitting was not

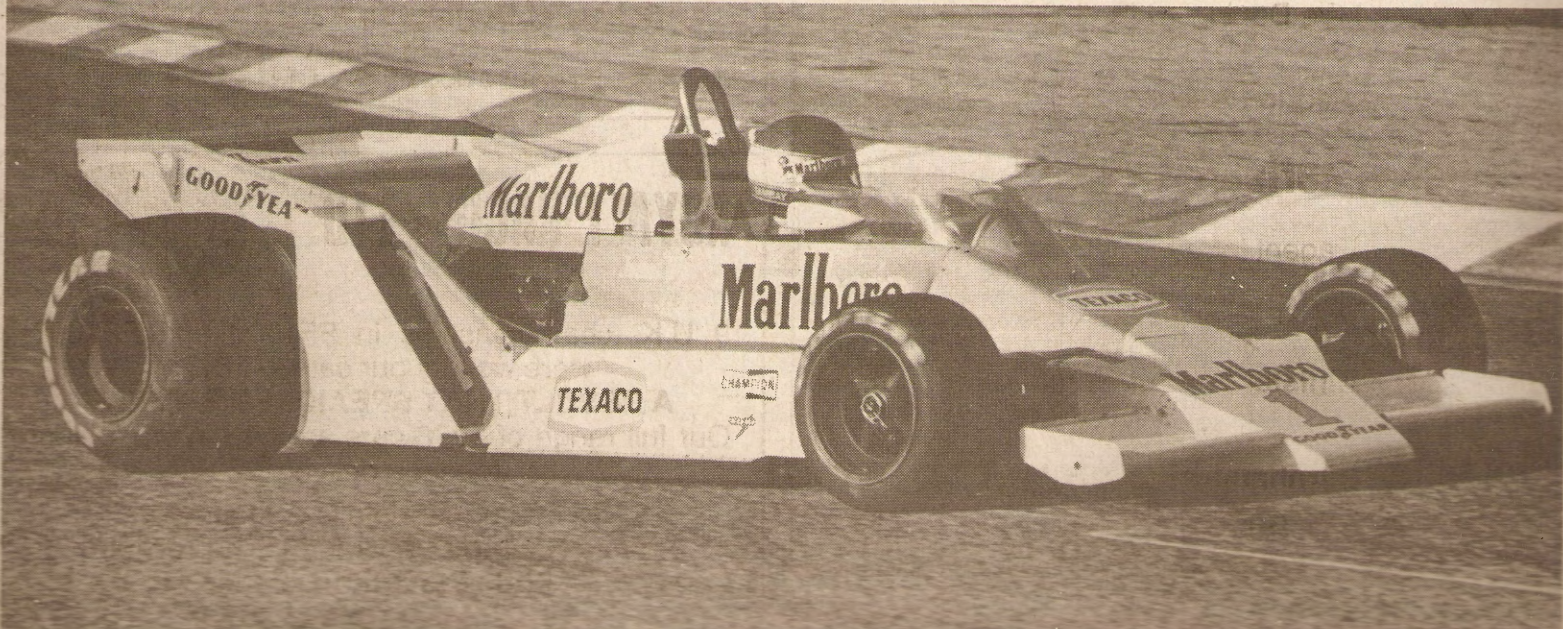
successful, and Jackie was never comfortable in the car. This was a disappointment, for apart from anything else Jackie was making interesting and instructive comments and suggestions to improve the cars he drove. Unfortunately, comfort in an F1 car is the number one prerequisite, and therefore Jackie was unable to drive at sufficient speeds to make a proper evaluation. This was a great shame, because I am a firm believer that two heads are better than one, and was looking forward to hearing his comments and ideas on the M26.

As I mentioned earlier, my globe-trotting continues unabated, even in the off-season. Apart from several trips to London for the usual end of season functions and work for sponsors I have also had journeys to Austria, Germany and Yugoslavia for Racing Car Shows and Switzerland, France, Belgium and Scotland for my sponsors. My travel has not been made any easier by a spate of fog and some serious airline incompetence. During the past fortnight I have been stranded twice for over 24 hours: on both occasions the airline was the same and neither accommodation nor information was provided. It meant I had to cram three and a half days' work into one and a half, which was a pity for everyone concerned. . .

I recently had a very enjoyable stay in Mexico City, where it was intended that I should drive one of Fred Opert's Formula Atlantic Chevrons. Even before we got there, we knew there was little chance of my racing, as the meeting didn't have an International permit. We went nonetheless, as I had work to do for the local Texaco and Marlboro people, and I didn't want to let the organisers down in case they got a special licence at the last minute. From the moment we arrived in Mexico, we were looked after like kings, and everywhere we went we were accompanied by a couple of plain-clothes policemen toting UZI sub-machine guns and AR15 automatic rifles (complete with racing stickers on their butts!). They even came with us on Mexico's famous big-dipper, reputed to be the biggest in America. Given any sort of excuse, we also had a couple of police motorcycle out-riders to speed our way through the metropolis's dense and difficult traffic.

The circuit is almost in the centre of the city, and part of a huge sports complex. If the necessary work was done to bring it up to today's safety standards, it could be made into a superb Grand Prix circuit again. Mexican hospitality is really something else, and I would dearly love to race there if they managed to get it all together—and one thing they certainly don't lack is enthusiasm.

James's new team-mate Patrick Tambay in the McLaren M26½, dubbed the 'Batmobile'.





Ginger Marshall strives to hold off John Homewood's Imp which went on to record the farmer's 70th win at Brands.

BRANDS HATCH

Homewood 70th!

In complete contrast to last year's glorious weather the BARC's traditional Christmas Car Races were staged in cold, damp conditions under a threatening grey sky. The event was capably run, as always, and the fair-sized band of enthusiastic supporters were homeward bound by 3.30pm. Sadly the entry was but a shadow of previous years, many potential competitors obviously wishing to partake of the Christmas spirit rather than spend the day at Brands.

The first race was originally intended for the top ten ShellSport Gold Star winners of 1977 but, with unavailability a problem Brands Hatch's own 'Snowflake' Smith and Renault 5 ace Juliette Slaughter were drafted in at the last minute to replace northerners John Kirk and Doug Niven. (Brands couldn't find an opportunity to give Tony Lanfranchi a go this time!) From the start it was clubmans champion, Dud Moseley, who broke away with local Formula Fordster Paul Sleeman in hot pursuit. These two were locked in combat throughout the race, setting a cracking pace as they went. Behind these two, Nick Whiting found the opposition difficult to pulverise this week and diced hard with Jonathan Palmer (the Marcos-man) leaving Tony Sugden, Smith, John Homewood, David Farrer and Peter Baldwin to dispute the minor placings. Having led for most of the ten laps Moseley was forced to relinquish the lead, and victory, to the Canadian in the closing stages, Whiting annexing third having nudged Palmer off the track at Clearways on lap 8. Thus Sugden inherited fourth from Smith and Homewood. Young Farrer, who has driven an AET Escort in special saloons with great success this year, finished next up after the most entertaining drive of the race, being sideways almost from lights to flag!

Having planted Graham Miles's BMW 3.0Si on pole position by a wide margin it seemed a foregone conclusion that Londoner John Brindley would take victory in the eight-car Noël Trophy production saloon race. The sole Class B entry, Eric Cook, though, had other ideas, Cook's Mazda RX2 rocketed off the front row and had pulled out around a second's advantage by Paddock over Brindley before the duelling Renaults of Keith Newland-Hodges and Juliette Slaughter appeared over the brow. The 'Flying Butcher from Bushey' strove magnificently to hold the more powerful car at bay but succumbed to the pressure on top straight third time round. Juliette, too, was going superbly and was by this time up to third overall although she had to give best to Hamish Irvine, piloting the McCrudden Imagine Opel. Up front the cheeky Cook outranked Brindley into Paddock to lead again until lap eight, John falling back by 100 yards or so before chasing in earnest again. The crowd really loved every minute of the race, especially once Irvine had extricated the lurid pink Opel from between the two Renault 5s, thus allowing them to resume their titanic struggle. Brindley as expected held out until the flag with the delightfully raucous Mazda in his wake. Despite a badly bent chassis member and a heavy cold Slaughter successfully fought off Newland-Hodges for fourth place and a class win behind Irvine. Sixth was David Kahn's Renault which had been engaged briefly with

Stuart MacAllan's Mazda before he spun and pitted.

The Mistletoe Challenge FF1600 race was third in the programme and once again it was Croydon launderette owner Peter Lawrence who shone in practice, qualifying the ancient Royale RP3A on pole ahead of Kim Perry's smart Hawke DL19 and Paul Sleeman, having another run in the Rostron which he is gradually developing over the winter. Sleeman it was who made the best start to lead the red car of Perry and the lagging Lawrence into Paddock for the first of the 12 laps—a lead which lasted only until the second tour when the gear lever broke and he pulled off, leaving Lawrence's Mansell-supported Royale firmly in the lead. David McClelland had other ideas, though, and was quickly past Perry and hot on the heels of the leader. Ashley Ward was driving the pretty Chicago XI Saracen smoothly and was lying fourth ahead of David Dickson, John Ayres's well-conducted Rostron and the Royales of Terry Gray and Mike Taylor. McClelland's Crosslé shot past the old Royale third time round as they entered Paddock and thereafter was never headed although a high-speed misfire plagued the engine in the last three laps. As this unforeseen problem audibly worsened the exuberant Brian Jones, commenting for the afternoon, uttered "I should think he's only running on five cylinders!" and if indeed McClelland was using the 3.4-litre Essex F5000 engine in his chassis it was a great achievement passing scrutineering let alone racing. However, he was not disqualified so we can assume that everything was OK. With two laps to go Perry took Lawrence for second while Ward, Dickson's Royale and Ayres completed the leaderboard.

Peter Baldwin's familiar Mini-Allen sat on pole position for the Christmas Cup special saloon car race with the quickest 1-litre machine, Ginger Marshall's Mini Countryman Imp alongside. Ginger was hoping that testing maladies had been sorted and was pleased to be a fraction quicker than John Homewood, whose Davrian-based Imp occupied the other front row berth. Homewood proved again that there is more traction available from the flatter outside starting position and duly made the best start to lead the other front row men, then Terry Harmer's Mini and the Imp of John Schneider into Paddock. Marshall absolutely revelled in his inside line down the hill though and he catapulted past Homewood into Druids, immediately opening up a sizeable lead. Baldwin also took the Charing farmer before the lap was out, setting his sights firmly on the pristine blue Minivan having accomplished this feat. Behind the top three the pack were beginning to sort themselves out with Harmer and Schneider holding off Steve Phillips's Escort and the slow-starting John Davies in the Transped Cooper 'S'. Marshall held on tenuously to his ever-decreasing cushion and slowed slightly on the sixth lap allowing both Baldwin and Homewood through. With Harmer's car in the pits Schneider now held fourth although he was rapidly being caught by Davies who was really flying now having forged past Phillips on the fourth circuit. John Worster was also going well, being sandwiched on the road by the Escorts of Phillips and Eddie Punt—his immaculate BDG-powered example having an 'off' day. The leading 850cc car, the superb green Bevan-Imp of former Mini-campaigner Monty Guildford, was making good progress, George Bevan himself watching with interest from the pit lane. On lap eight Baldwin and Homewood, locked in combat, came across some

backmarkers, John rearing the situation beautifully and hurtling into the lead with a couple of seconds in hand over his adversary. This he held comfortably until the end to record his 70th win at the Kent circuit! A disgruntled Baldwin finished in the runner-up spot, still winning his class although he rather ungraciously, some thought, punted Homewood amidships on the slowing down lap. Marshall solidified on to third place conserving his car but still ahead of the impressive Davies who, much to his pit crew's delight, usurped Schneider on the final lap. Phillips, Worster and Punt were next up ahead of John Mowatt's amazing road-going BMW.

The penultimate event of the day was the Jack Brabham Trophy Race for FF2000 cars to whose meagre numbers were added those FF1600 drivers failing to qualify for their own race. Neil Bettridge qualified the pretty CTG on pole from Rick Morris Tony Halliwell, having his first start in Fairview Estates' ex-Puerta Crosslé 33F, and Tom Hudson, going well at last now that he has a competitive chassis. Halliwell got the better of Bettridge off the line with Hudson in tow ahead of Bob Jarvis in the Condor (née Palliser, which he drove on occasions in 1976) and Mike Thompson's Sample Surveys Reynard. Once Bettridge had fallen off at Clearways on the second lap it was left to Hudson to give chase which he did, in vain, throughout the race. Halliwell, who was naturally extremely pleased at winning his first FF2000 sortie, admitted to clipping a slow FF1600 car en route to victory and looked forward to a competitive year against top opposition in 1978 while receiving the trophy, one of Jack Brabham's helmets mounted on a wooden plinth. Behind Hudson, the talented Jarvis steered the old Condor home (when will someone give him the competitive drive he deserves?) ahead of Rick Gorne's Reynard and Morris who blew his front-row start in Peter Lloyd's aerodynamic Saracen and never recovered sufficiently to challenge seriously.

The Holly Plate Formule Libre race brought proceedings to a close, the majority of competitors driving FF1600 cars interspersed with the usual FF2000, FSV and Clubmans machines. From the start it was the Taurus Super Vee of Clapham-based taxi driver Ronnie Grant who sped off pole position like lightning to lead Martin Mansell's rapid Mallock. Richard Dutton (in Rick Gorne's Reynard) and Grant's team mate Olly Hollamby who had made it a Volkspares one-two on the grid with his March-bodied Crosslé. Paul Sleeman ran fifth ahead of Terry Gray (Van Diemen) and the third FSV car, the Lola of Nick Anger. Grant drove beautifully throughout as befits his experience and never put a foot wrong to win from the Mallock which never came close enough to offer a serious threat despite a demon effort by Mansell on lap six. Hollamby, having passed Dutton on lap four, closed rapidly on the white U2 towards the end but could not make up the necessary ground in only ten laps. Dutton, Sleeman and Anger filled the other placings ahead of the dicing David Minty (going well in his Van Diemen RF77) and Gray, these two being joined in the latter stages by Nick Ward, having forsaken his Rendells Racing/Geerings of Chichester Image for a Royale RP24.

MARCUS PYE

ShellSport Gold Star Escort Race (10 laps): 1, Paul Sleeman, 10m 48.6s, 66.80mph; 2, Dud Moseley, 10m 49.1s; 3, Nick Whiting, 10m 55.8s; 4, Tony Sugden, 10m 55.9s; 5, Mike Smith, 10m 57.2s; 6, John Homewood, 10m 57.5s. **Fastest lap:** Moseley, 1m 3.4s, 68.34mph.

Noël Trophy Race for Production Saloons (10 laps)—Overall: 1, John Brindley (3.0 BMW Si), 10m 28s, 69.00mph; 2, Eric Cook (2.5 Mazda RX2), 10m 28s; 3, Hamish Irvine (2.9 Opel Commodore GS E), 10m 52.2s; 4, Juliette Slaughter (1.3 Renault 5TS), 10m 52.6s. **2501-3000cc:** 1, Brindley; 2, Irvine; no other starters. **Fastest lap:** Brindley, 1m 0.5s, 71.62mph. **1501-2500cc:** 1, Cook, 68.89mph; no other starters. **Fastest lap:** Cook, 1m 1.0s, 71.03mph. **1501-2000cc:** no finishers. **Fastest lap:** Stuart MacAllan (2.0 Mazda RX3), 1m 4.0s, 67.70mph. **Up to 1500cc:** 1, Slaughter, 66.40mph; 2, Keith Newland-Hodges (1.3 Renault 5TS), David Kahn (1.3 Renault 5TS). **Fastest lap:** Newland-Hodges and Slaughter, 1m 03.8s, 67.81mph.

Mistletoe Challenge FF1600 Race (12 laps): 1, David McClelland (Crosslé-DL19), 10m 36.9s, 81.64mph; 2, Kim Perry (Hawke-Minister DL19), 10m 40.5s; 3, Peter Lawrence (Royale-Auriga RP3A), 10m 41.4s; 4, Ashley Ward (Saracen-Scholar 77FF), 10m 43.8s; 5, David Dickson (Royale-Scholar RP24), 10m 46.5s; 6, John Ayres (Rostron-Quantune CT3), 10m 47.7s. **Fastest lap:** McClelland, 51.7s, 83.81mph.

Christmas Cup Race for Special Saloons (10 laps)—Overall: 1, John Homewood (1.0 Sunbeam Imp), 8m 52.5s, 81.37mph; 2, Peter Baldwin (1.3 Mini-Allen), 8m 53.8s; 3, Ginger Marshall (1.0 Mini Countryman-Imp), 8m 55.5s; 4, John Davies (1.3 Transped 'S'), 8m 30.5s. **1300-2500cc:** 1, Steve Phillips (1.6 Ford Escort), 75.34mph; 2, Eddie Punt (2.0 Ford Escort BDG); 3, Jon Mowatt (2.0 BMW 2002 T). **Fastest lap:** Phillips, 55.9s, 77.51mph. **1001-1300cc:** 1, Baldwin, 81.17mph; 2, Davies; 3, Tim Swadkin (1.3 Ford Anglia BDA). **Fastest lap:** Baldwin, 52s, 83.33mph. **851-1000cc:** 1, Homewood; 2, Marshall; 3, John Schneider (1.0 Hillman Imp). **Fastest lap:** Marshall, 51.5s, 83.49mph. **Up to 850cc:** 1, Monty Guildford (1.0 Bevan Imp), 70.53mph; 2, Steve Mole (BLMC Mini CM7), 9 laps. **Fastest lap:** Guildford, 58.8s, 73.79mph.

Jack Brabham Trophy Race for FF2000 and FF1600 (12 laps)—Overall and FF2000: 1, Tony Halliwell (Crosslé-Minister 33F), 10m 9.2s, 85.35mph; 2, Tom Hudson (Reynard-Ford SF77), 10m 10.2s; 3, Bob Jarvis (Condor-Ford), 10m 22.3s; 4, Rick Gorne (Reynard-Ford SF77), 10m 25.6s. **Fastest lap:** Halliwell, 39.6s, 97.36mph. **FF1600:** 1, Dave Hoban (Ray-Nell Brown 75F), 11 laps, 78.21mph; 2, John Tyzak (Hawke-Ford DL12), 11 laps; 3, Simon Sabel (Merlyn-Minister Mk24), 11 laps. **Fastest lap:** David Minty (Van Diemen-Ford RF77), 53.0s, 81.75mph.

Holly Plate Formule Libre Trophy Race (10 laps): 1, Ronnie Grant (Taurus-Jekind M24 VV), 8m 26.8s, 85.50mph; 2, Martin Mansell (Mallock-Abbott Mk 18B), 8m 33.9s; 3, Olly Hollamby (Crosslé Super Vee), 8m 34.1s; 4, Richard Dutton (Reynard-Ford SF77), 8m 44.9s; 5, Paul Sleeman (Rostron-Minister CF77), 8m 53.5s; 6, Nick Anger (Lola-Godwin VV T22), 8m 55.2s. **Fastest lap:** Grant, 50.47s, 87.47mph.

FF1600 for Sneller

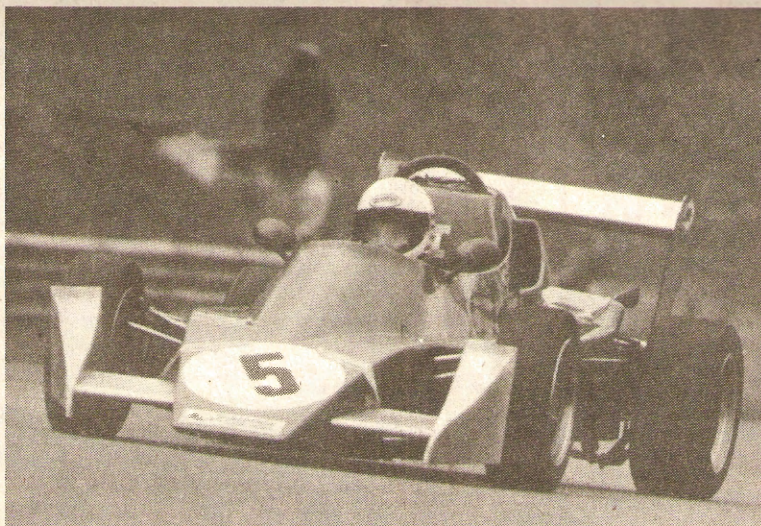
Peter Sneller, the Marlow driver perhaps best known for his exploits in special saloons last season with his immaculate green Riley Elf, has decided to take the single-seater route for 1978. Having put the Riley in the hands of Lodge Corner Agencies last month, Peter, who works for the local DAF Trucks concern, has acquired the ex-Tom Wood Royale RP21W complete with its unique side pods. Sneller, with his brother Doug who has not previously raced, only had time for a brief practice session in the wet at Silverstone before bringing the car to Brands for the Christmas races. Although some competitive times were put up at Silverstone Peter had never been to Brands before and so concentrated on playing himself, and the car, in thoroughly on his first race outing. The team hope to contest the BARC championship, sponsored by Phillips, throughout the coming season.

Ackers for Ackerley

Tunbridge Wells driver Andy Ackerley has sold his ex-Lennox Hawke DL11 and is currently negotiating the purchase of Mike 'Abacus' Taylor's 1978 specification Crosslé 32F, which he intends to race in all rounds of the 1978 Townsend Thoresen FF1600 Championship. A sponsorship package is being worked on at present which, if successful, should see Ackerley in a strong position at the beginning of the season after an intensive testing programme. If this should fail, Andy will still try to scrape enough money together to run in the TT series although there is a possibility that an up-and-coming Sussex driver may hire the car for the Dunlop 'Star of Tomorrow' series to help out with the finance.

Echo for Woolbridge

The Woolbridge Motor Club's annual Dragon Rally will be known as the Echo Dragon Rally when it is run on February 4/5 in 1978. Southern Newspapers Ltd are sponsoring the event and it has been named in accordance with the firm's daily publications such as the *Dorset Evening Echo* and *Bournemouth Echo*. The 165-mile event will start from the Esplanade at Weymouth with scrutineering at the local Wadham Stringer dealership and signing-on in the Gloucester Hotel on the promenade. Competitors will be flagged away from the ramp by Miss Southern Newspapers. Premier awards for first, second and third overall will be the *Echo Trophy*, the *Echo Cup* and the Southern Newspapers Trophy respectively. Regulations and entry forms are available from: Angela Bennett, 1 Duck Street, Cerne Abbas, Dorchester, Dorset.



Rick Morris gave Peter Lloyd's smart new Saracen its second outing at Brands over Christmas. It may well appear at the show.

Donington Speed Show Preview

The Donington Park Speed Show opens this coming Friday, January 6, and runs until Sunday, January 15. The show has been organised to provide motoring enthusiasts with the opportunity of seeing a cross-section of 1978 racing chassis under one roof.

Several leading manufacturers will be taking their new models to Donington—Chevron, Crosslé, Reynard, Royale, Van Diemen, Dulon and Saracen have all taken stands. Apart from the cars themselves other exhibitors include manufacturers of racewear, sports wear, racing drivers' schools, motor racing clubs, wheel and tyre manufacturers, engine tuners and motor sport publications.

The Donington Speed Show opens each day from 10am until 6pm and the fully licensed cafeteria will also be open for the duration of the event. Admission, at £1 for adults, 50p for senior citizens and children under 15, no charge for children under seven, also includes entry to the fabulous Donington Collection so why not make a dual-purpose trip?

Several special features have been laid on for the Speed Show including the debuts of both the Shadow-Matra DN5 and Marlboro-McLaren M23 F1

cars in the Collection. The Leyland Collection in the same complex now features one of the 5.3-litre G2 Jaguars which, if you missed them at the TT, would make the visit worthwhile.

A full list of exhibitors is published below. Cars known to be appearing include Frank Sytner's Foxcub Royale RP25, Rick Gorne's new Barratt-Reynard on the Richard Dutton Racing stand and the latest car from Saracen Engineering—possibly the promising new FF2000 car. Hawk Racewear will announce their new quad-layer 'Firebird' System IV racesuit which represents the ultimate in race driver flame protection available in the world today. 'Firebird' System IV utilises all British components and the revolutionary new 'Firebird' quilting filler which will not burn even when exposed to a 1300 deg C gas flame for up to 30 minutes. The thermal insulation properties of 'Firebird' are claimed to be superior to any conventional 3-layer suit but without any weight increase in the garment. The 'Firebird' System IV has been chosen by Derek Bell to contest the 1978 Le Mans 24-hours with the Renault Alpine team. The suit will be the subject of a daily efficiency demonstration at the Speed Show next week.

British Racing & Sports Car Club; Caterham Cars; Champion Spark Plugs; Chevron Cars; Crosslé Car Company; Dulon Cars; Electric Service Company (Birmingham) Ltd; Formula One Racewear; GPS Wheels; GT Cars Ltd; Hawk Racewear; Hawke Racing Cars; Jim Russell International Racing Drivers School; Lodge Corner Agencies; M. & H. Racemaster Tyres; MG Car Club; Minister Racing Engines; Motoring News; Neil Brown Engineering; Nottingham Sports Car Club; Regie Renault; Reynard Cars; Richard Dutton Racing; Royale Racing; Saracen Engineering; Scorpion Racing Services; Sytner's Royale; T. & G. Marketing; Titan Cars; Van Diemen; Westover Engineering.

BMW at Brands

John Mowatt, the Wickford Caravan Dealer, forsook his regular Cooper 'S' for a somewhat rarer beast in the special saloon event at Brands over Christmas. His mount for the day was a metallic blue road registered BMW 2002Ti which certainly warranted closer investigation as it was proving quite rapid in practice. Time and time again the brave Mowatt would hurtle into Paddock, throw the car sideways, winding on copious opposite lock and drifting through with a panache which would put many drivers of more nimble machinery to shame. The crowd loved it, urging their hero on with much vocal support and arm-waving. When ques-

tioned on his antics the unflustered Mowatt revealed that the car was, in fact, a G1½ machine which had last raced at the GP meeting in 1973 and had not turned a wheel until the week before Christmas. The 'cooking' engine was fired up during the week and the Bee Em was rushed off up the nearest main road to grind the rust from the brakes! John drove in steady but spectacular style during the race and annexed third in class behind the potent Escorts of Steve Phillips and Eddie Punt—and not far behind either. Watch this space for details of further plans for the car (or will it be stored until Christmas 1981?).

Nogaro tests for Farthing

Steve Farthing, the young Weymouth driver, will continue in FF2000 next season with a new Reynard SF78, currently being built at the Davron factory, from where the car will be based and prepared. He will be contesting all championship events, following a thorough period of testing, due to commence in mid-January. He hopes to be able to take in testing at Nogaro in France, when his programme falls foul of the English weather. Sponsorship will continue from his father's Littlesea Holiday Park concern in Weymouth. Farthing himself is currently in the Seychelles, where Littlesea are planning to extend their interests.

G5 Esprit in 1978

The ex-Gold Leaf Team Lotus 47, raced for the past few years by Ian Marshall under the Macinnes Amcron Racing Banner, has been sold to Japan! Ian beat the Chevron B8's convincingly at the last BAT round at Brands to win the class, and set a new lap record in the process with the 47, and was approached in the paddock by two gentlemen from Japan. A deal was agreed and the car sold the same day. Now Ian has a Lotus Esprit being built by Racing Fabrications at their Suffolk workshop in which to contest the BRSCC and BARC modsports championships. The car is being built with Group 5 in mind, and it is hoped to enter the car in the G5 race at Silverstone in May.

SS Aero Racing

Following our *Olde Yuletide Road Teste* on the Morgan SS Aero we have been contacted by Graham Chivall of the Morgan Three-Wheeler Club regarding the racing of these cars. Several members of the MTWC have competed in 1977 and these super vehicles can be seen again at 12 meetings in 1978. They are all at motor-cycle meetings organised by the Vintage MCC or by the Vincent and Velocette Owners Club events where they usually beat the motor-cycle combinations. It is hoped that some races may be arranged against four-wheeled opposition but, at present, the RAC view this unfavourably. Morgan three-wheelers should be seen next season at Cadwell Park (May 6, May 28, September 9 and October 8), Mallory Park (May 7, August 21), Oulton Park (September 23), Donington Park (July 30) and Brands Hatch (July 9). Anyone interested in competing should contact Graham at 188 Todmorden Road, Bacup, Lancashire, as he is the club's Competition Secretary.

Autocross series in North-east

This year's *Journal*/ANECCC Autocross Championship, the leading series in the North East, will start in April but there will be fewer rounds than before. Championship organiser Trevor Olds says the committee plan to have only 12 rounds—at least a fortnight apart—and that the final will be on October 8 with Hadrian CC in charge.

This year's series, backed for the fourth time by *The Journal* newspaper, will again carry a prize fund of over £1000. Last year's winner, Dominic Buckley is expected to participate while the winner in the previous two years, John Lindores is planning a return after a year's absence on rallies.

Regs are already being posted to the 114 registered contenders for last year and anyone wishing to receive a set should get in touch with Trevor Olds at 12a Hedgeley Road, West Denton, Newcastle upon Tyne NE5 2AX. Tel: Lemington 674304.

● Rostron Racing Cars supported the recent 'Malta Grand Prix' meeting at the Malta Inn in Maidstone. The event, a round of the World Championship for Pram Drivers (!) took place over an arduous course and resulted in victory for Peter Edwards and Tony Broome in their Rostron special. They narrowly beat the green fingered Wil Arif on the road after a race which saw strong rivalry between the Minister and Piper teams. The Christmas extravaganza was chaotic to say the least although great fun was had by all—the proceeds being donated to the local Horse and Pony Rescue Society.

Briefly . . .

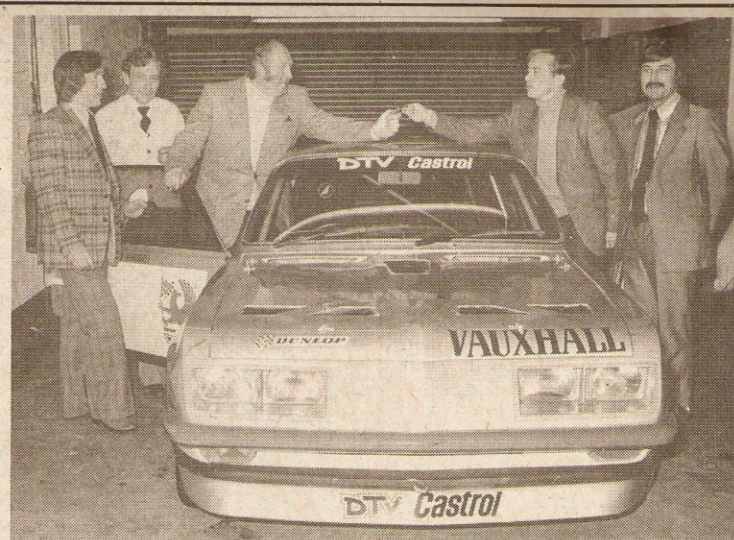
● Charles Hill and John Vincent are to campaign an Alfasud in local road rallies with backing from F. K. Sharpe Ltd, main Alfa Romeo dealers in Lincoln. Hill, who rallied an Escort BDA a couple of years back with sponsorship from Barratt Homes was forced to retire when another major backer, Mrs Hill, pulled out after having a baby! Charles, who manages a leading building society branch, will be out on the Border MC's Morning Star Rally this coming weekend.

● Following last month's BRSCC Marshals v Racing drivers darts match at Brands Hatch, Wil Arif Racing's Ian Dickens has contacted us to say that the return match will be at the same venue, on Wednesday, January 25 from 7.30pm. Any marshal/driver/team member is welcome (especially female versions) and a good time will be had by all if the first match was anything to go by!

● Regs are now available for Newtown and District AC Stages Rally. The entry fee is £25 for 35 stage miles. A qualifying round for the Welsh Stage Rally, the event is a single stage event, starting and finishing in the same forest. The club have also arranged for part of the event to be video-recorded and shown at the Abernart Lake Hotel after the event. Regulations from Tony Farrington, Ashleigh, Dolforga View, Kerry, Newtown, Powys. Please enclose SAE. Tel: Kerry 267.

● Rallying is being taken to the masses in Rumania by Martin Holmes who is taking part in a three day seminar from January 16 to 18 and will be giving one of six lectures on the schedule about the sport.

● Because of the uncertainty of the future of the circuit at Longridge, Longton & DMC are not running a rallycross championship this year but the second of their planned meetings on February 26 is guaranteed.



Probably the most successful racing car ever built in Britain, 'Old Nail', the first of the Dealer Team Vauxhall Firenza saloons, has been re-united with its famous driver. At a surprise ceremony held during DTV's Christmas party Bill Blydenstein (second right), the man who first put Vauxhall into the winner's circle and who now runs the Team's activities, presented the car keys to a noticeably moved Gerry Marshall.

'Old Nail' first appeared as the Thames Television-sponsored Firenza special saloon in 1971 and between then and its retirement in 1975 notched up 65 race wins—62 with St Albans driver Marshall behind the wheel and three with Scottish champion Bill Dryden. When it first raced the car was fitted with a single cam 2.5-litre engine, until in 1973 an engine similar to the present 248bhp, 16-valve, twin cam unit was installed. Although a special saloon, 'Old Nail' achieved its considerable successes with a remarkable number of near standard components, including body/chassis unit, power train, suspension and rear axle.

1972: BARC Forward Trust Championship—overall winner (Gerry Marshall)
1973: BARC Forward Trust Championship—over 1300cc class winner (Gerry Marshall)
1974: Simoniz Saloon Car Championship—over 1300cc class winner (Gerry Marshall)
1975: Scottish Saloon Car Championship—over 1300cc class winner (Bill Dryden)

● An idea for the Christmas stocking could be the new game called 'Rally' which Stirling Moss has devised and has been made by Whittlecraft, Kents Green Court, Callow End, Worcester, Tel: Worcester 830811, for children from the age of ten upwards and for two to six players.

● On January 11, Stephen South, Derek Warwick and Ian Taylor will be the guest speakers at the Reading Centre of the 750 MC. This informal review of Formula 3 will be held at 'The Angel', Woolhampton, starting at 8pm and is open to anybody wishing to attend.

● Leeds Crest Motel provided meal vouchers for the overall winner, Peter Silberberg (Mini), and founder members David Taylor and Howard White, in a Mini and Escort, who won their classes when Trackrod MC held an autotest at the Motel on Boxing Day.

● Esso products have certainly proved successful in Southern Production Car Trials in 1977. Richard Acres of Dudsbury Car Club from Dorset has used a Mini Cooper 'S' lubricated with Uniflo oil and shod with standard Esso radial tyres to become the overall ACSMC Trials Champion.

● Nottingham University MC will be promoting their Nottingham University Rally (formerly the Shipside Trophy Rally) in its usual popular pre-plot format on February 18/19. It is again a round in the EMAMC championship. The event will start from the premises of B&K Thomas Ltd, Trent Bridge, Nottingham, and the half way and finish will be at Gunerby Hurw Service Area (130/888400) after a 170-mile route on maps 129 and 130. Regulations are available from Andy Hastie, 22 Teversal Avenue, Lenton, Nottingham NG7 1PX.

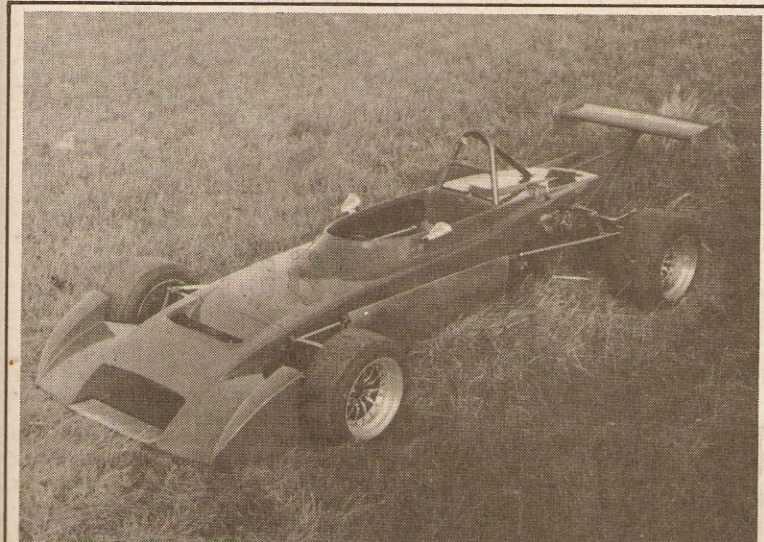
● The Competition Secretary of the Maidstone & Mid-Kent MC is now Michael Jordan, Pilgrims Garth, Hollingbourne, Maidstone, Kent. Tel: Hollingbourne 286 (home); Maidstone

● 143 Motor Club will be promoting the Wicliffe Rally 143 on the night of February 18/19. This year's event is a round of the West Midland road rally championship and sponsorship from the Wicliffe Motor Centre has allowed a prize list even more comprehensive than last year's. The pre-plot route will be popular with novices and experts alike. Regulations will be available soon from Barbara Daykin, 4 Pitt Street, Gloucester.

● The Shenstone & District Car Club are once again promoting their annual Winter Autocross on January 15 at Froggatts Farm, Wade Lane, Hill Ridware, Staffs. The meeting starts at 1pm and spectators are welcome. Hot and cold snacks and a licensed bar will be available on the site.

● DTV are taking their popular Roadshows to the Midlands in January. The Roadshow consists of an evening of motorsport films, slide shows and a forum including DTV's star driver Gerry Marshall. Slide presentation speakers will include Gerry Johnstone, Rally Manager of DTV, Roger Willis, Competition Manager of Castrol and Peter McBride, DTV Sportpart representative. There will also be an audience competition, and a display of Vauxhall cars including the exciting Chevette 2300HS. Doors open at 7.30pm for an 8pm start and admission is free. The dates for January are: Monday, January 9, Bristol Street Motors, Stoke on Trent; Tuesday, January 10, Garlick Burrell & Edwards, St Helens; Wednesday, January 11, Pickford Deighton, Sheffield; Thursday, January 12, Batchelor Bowles & Co, Leicester.

● The North Oxon Car Club is running its restricted Hella Banbury Cross Rally on February 4/5 on maps 151, 152 and 164. The 150-mile route will have the start, halfway halt and finish in Banbury and will include ten miles of whites. Navigation will be very straightforward with the road books issued at the start of each half. The entry fee is £8.50 and regulations are available now from Trevor Byne, 52 Cherwode, Ban-



Davron Racing Components, well known for racing engine and car preparation, are to go into production with their first production racing car in 1978. Designated the Davron L978, the new car (above) has been designed specifically for Formula SuperVee (water cooled) and Formula 'C' in USA. Designed by Ford Research Engineer John Lipman, previously associated with the Javelin FF1600 and FF2000 cars, the new car incorporates developments from both these cars. Lipman himself raced the development Davron in Monoposto racing in 1977, when it was fitted with a Davron 1600 Clubmans engine due to the anticipated similar power output with the new VW water cooled race engine.

Davron displayed the new car at the recent Belgian Show, when it created great interest among European SuperVee competitors. Davron are committed to a batch of the cars for Europe, and they have already received enquiries from the States for both SuperVee and Formula 'C' applications. Development is continuing on the VW water cooled engine, with customer orders for the unit being taken in January. The development Davron is currently at the firm's base in Buckingham, where it is being readied for a thorough period of testing during the coming winter months.

Midnight oil does pay off

One of at least two drivers to spend Christmas getting his car ready, Richard Edwards from Newtown successfully rebuilt the gearbox on his Escort TC in time to win the Parry Point Christmas Box stages rally run by Telford AC around Ditton Priors on December 27.

Edwards probably owed his success to a series of accidents which slowed proceedings considerably and caused the last stage to be run first in semi-darkness and finally in almost total darkness. He was better equipped with lights than the man he overtook on the penultimate stage Peter Fear from Ross on Wye in his Mark II Escort.

The organisers planned four stages, all run twice and contained within the former RN ammunition depot and attracted a motley assortment of modern and not so modern machinery in the 53 entries. Like the vehicles, the driving varied from fair to awful and it was not always the modern cars which were best piloted.

After four stages Fear had a 4secs lead over the Mini of Dave Davies with Edwards not in contention. These two were soon parted when Davies became the second to clobber the buildings dotted along the straights—there were three such incidents—and, as darkness approached, Fear was attacked by Edwards and Kevin Curran, another Newtown Escort man.

Edwards went through to win by a comfortable 21secs while Fear just held on to second by 7secs. A promising first outing with their championship spec Mazda Hatchback gave Martin Watson from Hoylake fourth after a far from relaxing Christmas.

1, Richard Edwards/Mervyn Francis (Escort TC), 1129s; 2, Peter Fear/Ian Scott (Escort), 1150s; 3, Kevin Curran/David Gethin (Escort), 1157s; 4, Martin Watson/Peter Stokes (Mazda Hatchback), 1172s; 5, Alan Shone/John Vale (RS2000), 1173s; 6, Mike Ridley/Peter Williams (RS2000), 1177s. **Class winners:** Watson, Fear, Peter Norris/Betton Cambridge (RS1700), 1268s, and Shone. **Mixed crew:** Martin Healer/Mary Scullion (Ford), 1260s.

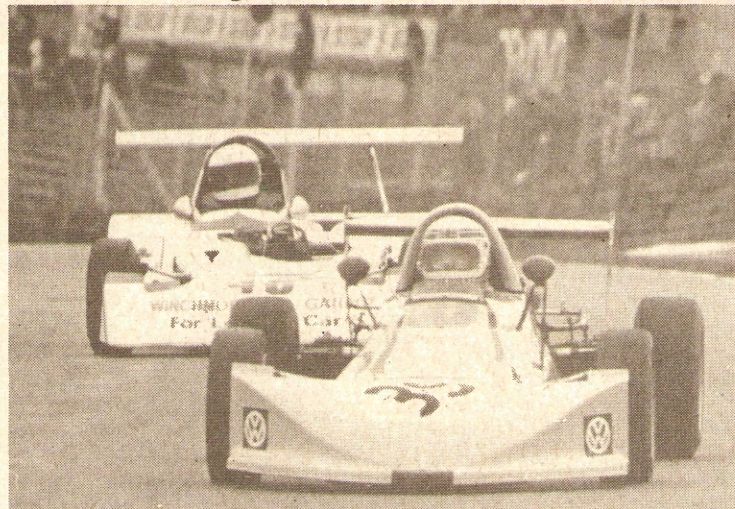
Cox and Midget at Harrow

Harrow Car Club stalwart Peter Cox took his 1.3 Midget to BTd at his club's annual Christmas Autotest event at Brunel University, Uxbridge, on Boxing Day when a field of 20 contested seven tests with best time to count.

Clerk of the Course John Calton, besides providing ample Yuletide cheer in the form of mince pies and meat pies from the family bakery, laid on some pretty demanding tests and Cox had to work hard for his win as Andy Longhurst (998 Cooper) ended the day only three seconds behind.

BTd: Peter Cox (Midget), 225.9secs. **Class winners:** Andy Longhurst (Cooper), 228.9secs; Brian Thorogood (Triumph Herald), 279.7s; Walter Heseltine (Mexico), 235.2s; Philip Fry (Sprite), 237.1s. **Novice:** Roger Newham (Mini).

Grant by seven seconds



Clapham taxi driver Ronnie Grant has concentrated on European SuperVee events this year but took his Taurus VW to Brands for the Christmas car races where he won the final race of 1977. He put the Volkspares-supported car on pole position and powered away to a fine seven-second victory over Martin Mansell's Winchmore Hill Garage Mallock which follows here.

Top prize to Peacock at Longridge

Brian Peacock collected more than £200 in prize money when he repeated his 1977 win at the rallycross at Longridge on Monday, run by Longton & District MC.

In the four-car final, the Thirsk driver led all the way in his 1420cc Mini to finish ahead of Ian Smith (Escort). Initially, Bruce Rushton (Escort) held second place but he spun his chance of victory away on the second lap when he was overtaken by Smith and a similar fate befell Richard Painton in his Mini who made his mistake on the first lap.

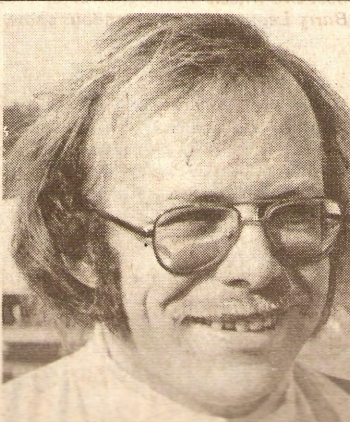
In the second final—for fifth to

eighth places—the three Minis of Ron White from Ireland, Mal Woodhouse and Les Lunn all beat Tony Drummond's Escort. A last lap hairpin spin proved extremely expensive for Drummond who led into the corner but came out third; as he slipped and slithered his way back on to course he had all four wheels off and was demoted accordingly.

Forty-two competitors contested three runs over the 3½-lap course with the best two times aggregated for the final run-offs.

TEAC Mini-Seven

	May 15 Lydden	May 29 Snetterton	Jul 17 Lydden	Aug 09 Lydden	Dec 11 Brands Hatch	Total Points
1. Richard Hamlyn	7	7	5	3	3	15
2. Peter Daniels	1	5	3	1	5	14
3. Martin Moorhead	—	—	—	7	—	13
4. Roy Finlay	3	—	—	—	7	10
5. Stephen Hall	—	—	—	—	7	7
Bob Paige	5	2	7	—	—	7
Bill Booth etc.	—	—	—	—	—	7



Paul Sleeman

TEAC FF1600

	May 15 Lydden	May 29 Snetterton	Jul 17 Lydden	Aug 09 Lydden	Dec 11 Brands Hatch	Total Points
1. Paul Sleeman	7	—	7	—	7	21
2. Gary Coward	—	3	1	—	3	14
3. Glenn Eagling	—	7	—	—	—	7
4. Tony Howard	—	—	5	—	—	5
5. Len Marchant	—	—	3	2	—	5
6. Doug Wood	5	—	—	—	—	5
Brian Turner	—	5	—	—	—	5
Rich Bacon	—	—	—	—	—	—
Peter Lawrence etc.	—	—	—	—	—	—

Fun for all at Malta

The popular Farnborough & District MC Boxing Day autotest at Malta Barracks, Aldershot, again provided a lot of fun for the 30 competitors for this year the range of vehicles to be used varied from a 15cwt J4 van to a kart.

Aldershot Car Breakers provided a Morris 1100, a Wolseley 1500 and the van, while various other friends loaned a Rover 2000, a Viva HA and the kart. Each contestant had to drive each vehicle on two tests with prizes for the fastest two overall and prizes for the fastest time in each vehicle.

Without setting fastest time, the overall winner was Mick Harvey in 181.0secs, which was more than 8secs quicker than rally man Charlie Wood who was quickest in the smallest and largest vehicles—the van and the kart.

Robin Briars claimed the prize in the Morris 1100, another rally man, Keith Aslett, was best in the Wolseley and Colin Short went best in the Rover 2000. Pete Elsdon and Keith Hazell tied in the Viva and they were also joint quickest in the van with Wood but Paul Evans took the award as Wood had claimed second overall.

Wharton trophy to Yapp

Sports car driver Richard Yapp has won the Ken Wharton Memorial Trophy, the highest award in the Hagley & Dist LCC. Midget man Yapp beat runner-up Peter Blankstone, the hillclimb, sprint and trials man by five marks and Blankstone takes the President's Cup. His wife Margaret collected the Wal Handley Trophy for best performance by a lady driver and all will be on hand to collect their trophies from either Stuart Turner or Alister Douglas-Osborn at the club's dinner-dance on March 3.



A large crowd attended Brands—witness the cars on South Bank.

Rod's . . . but not Rods

Rod Chapman won the third New Year Brands Hatch rallycross on Monday on only his second outing with the impressive ex-Bose Hi-Fi Porsche Carrera. But for the other Rods—the Hot variety—it was not such a good day, the visiting team losing the exciting Hot-Rod Rallycross Challenge.

The rallycross, organised by the BRSCC—who, although not their usual pick selves throughout, are learning quickly about the rather specialised world of rallycross organisation—was the third holiday period event at Brands and attracted a very good crowd, as had the previous race and motorcycle meetings.

The 56 competitors who braved the cold atmosphere in Kent included most of the country's leading rallycross expo-

nents, many using this non-championship event as a useful shakedown for the opening round of the Castrol/BTRDA series at Brands at the end of the month. The Hot Rodders, who were there for their special Challenge event, also entered the rallycross timed runs as extra practice, but were not classified.

Former Escort ace Chapman was still getting used to the ex-European Championship Porsche—of which he bought both examples, the other having been sold to John Greasley—but even his first-run time was third quickest. Ahead of him were the spectacular Barry Lee (Escort), whose superb car control should be a lesson to all drivers, and reigning Castrol/BTRDA champion Trevor Reeves (Mini). Fourth quickest

on those first runs was Will Gollop whose Saab 99 impressed many with its unexpectedly quick straight-line speed.

Lee was consistently quick in all three timed runs with Reeves, Trevor Hopkins (Escort), Gollop and Barry Hathaway (Mini) making it into the top four at least once.

Running eight cars—starting from two four-car rows on the usual starting grid—proved a highly successful method, and popular with the competitors, many of whom regard the Brands circuit as their favourite. Cars sped to Paddock, where they rounded a hairpin right on to the infield slope down to Cooper Straight. They then crossed Clearways to rejoin Brabham Straight and return to the start/finish line.

The top eight final was a runaway for

Chapman, who put the white and blue Porsche ahead by the first corner, and kept ahead of the battling pair of Lee and Reeves until the finish. Lee just managed to hold off young Reeves, whose Mini could not edge ahead of the expertly controlled Escort long enough to reach the flag first. Behind these two Hopkins and Barry Hathaway followed into fourth and fifth ahead of Louis Davidson and Dick Griffiths.

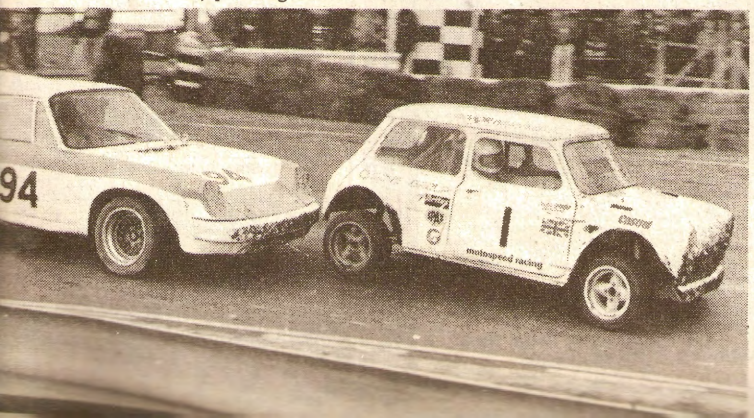
The Hot Rod Rallycross Challenge was run in four heats and three finals, the grids for which were decided by rather mystic machinations, the workings of which were known only to the competitors. The result, however, was seven excellent and close-fought races, some of which had the packed grandstand on their toes.

In December the Hot Rod team took the Spedeworth International Quaife Power Transmissions Trophy with a win at Wimbledon and it was up to the rallycross lads to do the same thing on 'home ground'. Escort driver Graham Hathaway started off in the right vein with a win in heat one from rodders Micky Hall, Bill Tucker and Pete Winstone (all Escorts). With the rodders ahead Rod Chapman's Porsche pulverised the opposition in heat two followed home by rod aces Mick Collard (Escort) and George Polley (Anglia) after rallycrosser Colin Richards (Chevette) had dropped down following a coming together with Polley and Clearways. The balance was adjusted slightly next time round with Trevor Reeves and Graham Hathaway completing a one-two for the rallycross side in heat three—ahead of a struggling Barry Lee (in a brand new Hot Rod)—and Trevor Hopkins winning heat four from rod driver Gordon Bland (Escort).

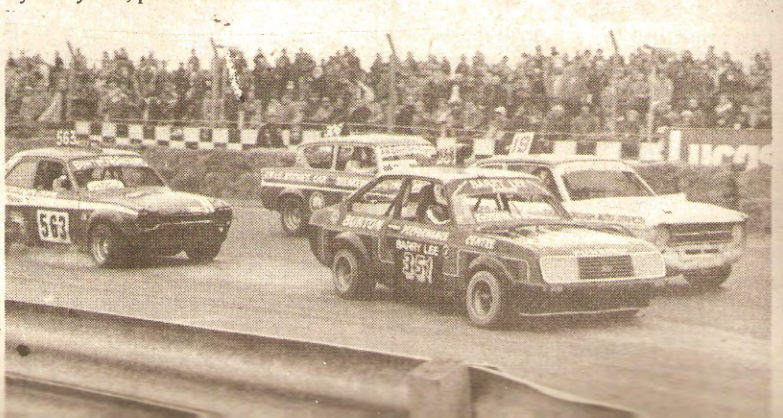
Richards won the first final after leader Trevor Reeves retired with a flat tyre and second leader Micky Hall exploded handing him the lead. Rodders finished second, third and fourth, so for the second final, the rallycross team pulled all the stops out and Chapman, Hopkins and Graham Hathaway took the first three places. Another victory for Hopkins in the third final set the seal on the rallycross victory, team captain Colin Richards accepting the presentation.



Above: Richards throws the Chevette sideways chasing George Polley. Below: winner Rod Chapman (Porsche) pressing Trevor Reeves.



Above: two wheels on the ground for Trevor Hopkins. Below: the Hot Rods, here led by Barry Lee, put on a tremendous show.





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